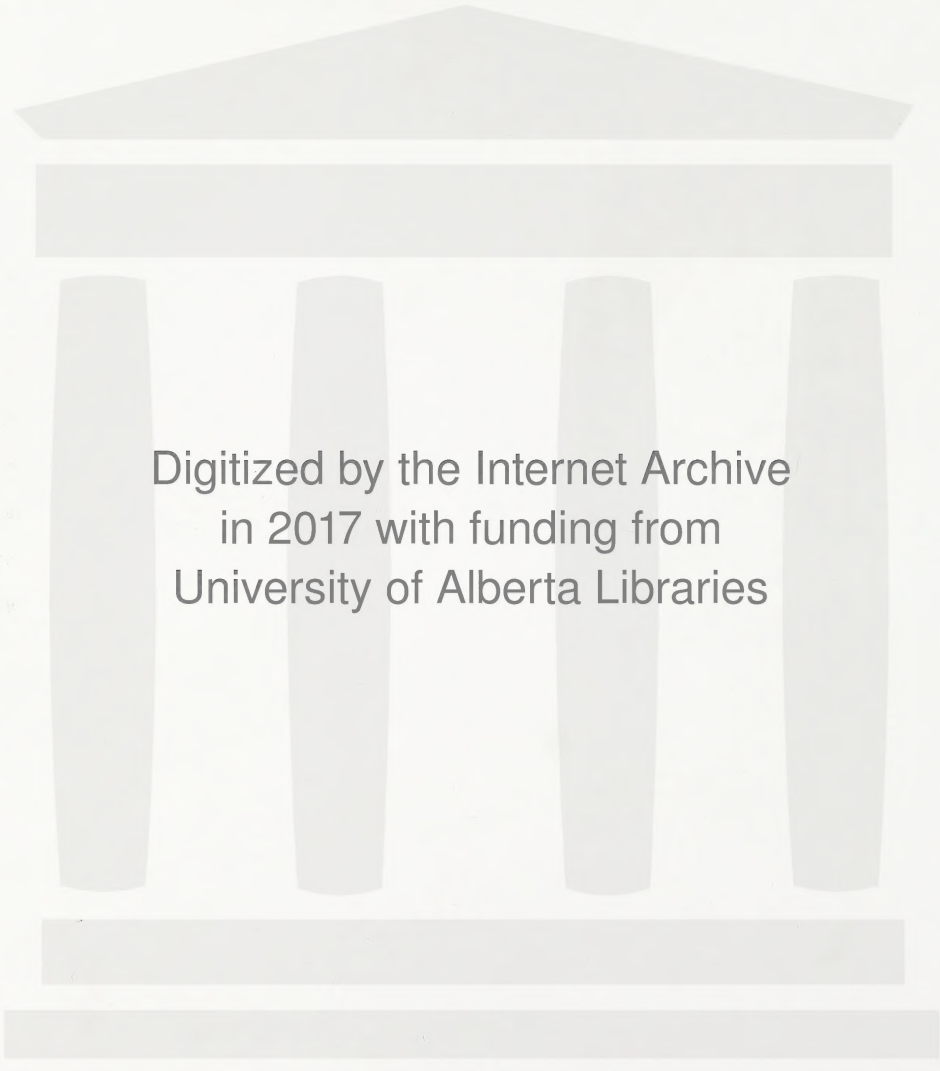
Cancer in Alberta: A Regional Picture 2005

Alberta Cancer Board



Cancer in Alberta: A Regional Picture
March 2005

The Division of Population Health and Information of the Alberta Cancer Board presents the seventh in a series of annual reports outlining cancer trends and regional rates in Alberta.

Cancer in Alberta: A Regional Picture provides a synopsis of data from the Alberta Cancer Registry to provincial health professionals and planners in an effort to assist with planning and policy-setting.

Report prepared by

Heather Bryant, Vice President and C.I.O., Division of Population Health and Information
Douglas C. Dover, Biostatistician
Ellen Murphy, Director of Prevention

Data prepared by

Douglas C. Dover, Biostatistician
Herta Gaedke, Programmer Analyst

Report edited and designed by

Linda M. Cunningham, Writer and Resources Co-ordinator

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Cancer in Alberta: A Regional Picture

Cancer in Alberta: A Regional Picture contains the following:

Introduction

The Introduction comprises highlights from the report, discusses the importance of cancer in Alberta, and talks briefly about the most common invasive cancers and cancer control activities in the province.

Provincial Overview*

This section provides information about incidence and mortality by age, gender, and Regional Health Authority, and shows the impact of the growing and aging population on cancer rates. It also presents cancer trends, projections, and survival statistics.

Site Specific Data*

This section discusses the incidence and mortality rates for women and men for the four leading cancers. It also contains data for men and women for five additional sites.

Understanding the Graphs

This section presents a detailed description of the statistical terms used in this report.

Technical Report

The Technical Report contains details about the data collection, coding, and statistical methods used to create this report.

Regional Data*

Data specific to individual Regional Health Authorities are located in the inside back cover pocket.

New to the Report

New to the report this year is an expanded section on cancer control activities in Alberta, contained in **Introduction**, and estimates of the lifetime probability of developing and dying of cancer, contained in **Provincial Overview**.

*Note on Regional Health Authorities

The Regional Health Authority (RHA) boundaries for RHA 3 and RHA 4 changed slightly effective December 2003. Statistics presented in RHA-specific tables in both the **Provincial Overview** and **Site Specific Data** sections of this publication are calculated using the new December 2003 boundaries. The regional figures presented in this publication are not comparable to those in previous publications for those RHAs only.

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Highlights

General

- Cancer is a leading cause of death in Alberta: more than one-quarter of all deaths in 2001 were attributable to cancer.
- In 2002, 12,118 Albertans were diagnosed with cancer and 4,881 people died from it.
- The number of new cancer cases in Alberta is expected to increase to about 28,000 cases annually in 2030, mainly due to increases in the age and size of Alberta's population.
- The most common cancers in Alberta in 2002 were prostate, breast, colorectal, and lung. These four cancers accounted for 56% of new cancer cases and 51% of cancer deaths.
- The overall lifetime probability of developing cancer in Alberta is 40.8% for females and 46.7% for males: the overall lifetime probability of dying of cancer in Alberta is 23.3% for females and 26.1% for males.

Specific Sites

- Lung cancer remains the most common cause of cancer death among both men and women. Although incidence and mortality rates for men have been declining in recent years, they are rising for women.
- Colorectal cancer is the second-leading cause of cancer death in Alberta.
- Prostate cancer is the most commonly diagnosed cancer of men. It accounts for 32% of cancer incidence among men: mortality rates for prostate cancer are slowly declining.
- Breast cancer is the most commonly diagnosed cancer of women. It accounts for 31% of cancer incidence in women: mortality rates have been declining even though the incidence is increasing.
- Research indicates that more than half of cancers diagnosed could be prevented through tobacco control, increased vegetable and fruit consumption, physical activity, sun safety measures, and organized cervical and colorectal cancer screening programs.

What is Cancer?

Rather than being a single disease, cancer is actually a related group of more than one hundred different diseases: what is similar for all of them is that they have abnormal cells within the body that divide and spread without control, whereas normal cells grow and divide but produce only enough cells required to keep the body healthy. Cancer cells are abnormal because they keep dividing even when new cells are not needed: such an abnormal growth rate often results in a tumour. When left untreated, malignant cancer cells can invade nearby tissue and spread through the bloodstream and lymphatic system to other parts of the body.

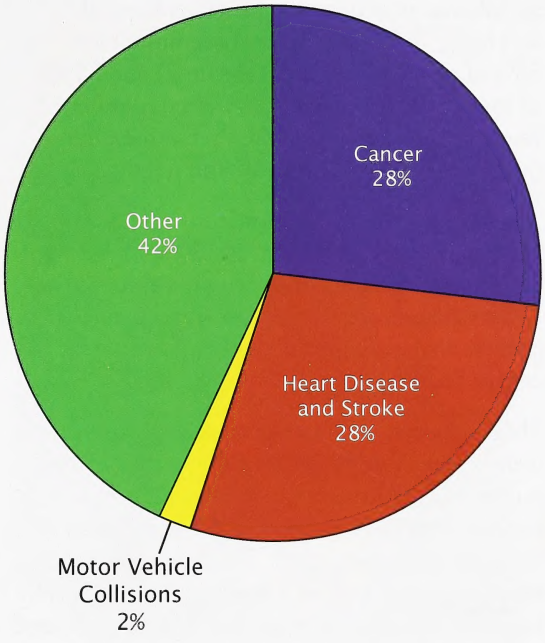
Cancer can begin at almost any site in the body and behaves differently depending on its point of origin. Cancers are most often named for the part of the body in which they originate: for example, cervical cancer begins in the cervix, and colorectal cancer starts in the colon or rectum.

Most types of malignant or invasive cancer can spread to distant parts of the body. It is this ability of malignant tumours to invade and spread to other tissues in the body that makes cancer so deadly.

Cancer is a leading cause of death in Alberta. According to the most recent statistics available from the Government of Alberta (see Figure 1), 28% of all deaths in Alberta in 2001 were attributable to cancer and 28% were caused by heart disease and stroke. All other causes combined accounted for the remaining 44% of all deaths.*

These statistics clearly illustrate the stature of cancer in Alberta and the resulting impact on our health care system, as well as the emotional, physical, and psychological toll on many Albertans and their families.

Figure 1: All causes of deaths in Alberta, 2001



* Alberta. Vital Statistics. *Annual Review 2001*. Edmonton: Queen's Printer, 2002.

Cancer in Alberta

In 2002, the most common invasive cancers in Alberta were prostate, breast, colorectal, and lung. These four cancers accounted for 56% of new cancer cases (Figure 2) and 51% of cancer deaths (Figure 3): a large number of less-common cancers make up the remaining number of new cancer cases and deaths.

The *Other* category for new invasive cancers includes a range of cancers, each representing very small segments of the total. Similarly, the *Other* category for cancer deaths includes several cancers that account for smaller percentages of cancer deaths.

Three cancers—stomach, brain, and pancreas—were responsible for 11% of the deaths in 2002 but were not individually identified in Figure 2 because they each accounted for fewer than 2% of newly diagnosed cases. These cancers have a poor prognosis and, as a result, make a relatively large contribution to mortality figures compared to their incidence rates. Lung cancer also has a poor prognosis: it accounts for 12% of new cases but an alarming 25% of cancer deaths.

Incidence and mortality rates for non-melanoma skin cancer (NMSC) are not included in any of the statistics presented in this document. Although approximately 30% of the malignant cancers diagnosed among Albertans each year are NMSC, these tumours are generally not life-threatening and therefore rarely included in cancer registry reports.

12,118 Albertans were newly diagnosed with invasive cancer, and 4,881 died from cancer in 2002.

Figure 2: New invasive cancers by site, Alberta, 2002

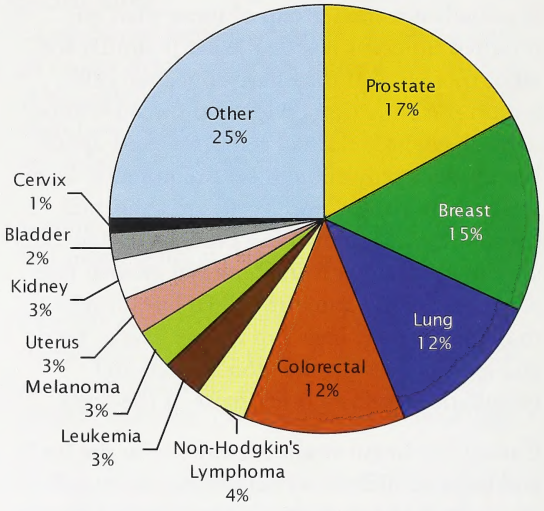
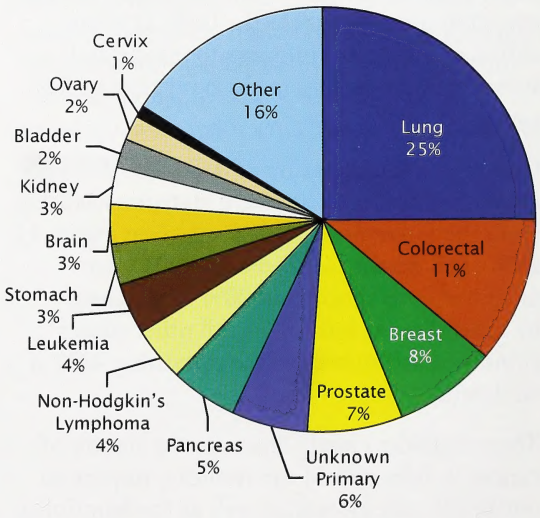


Figure 3: Cancer deaths by site, Alberta, 2002



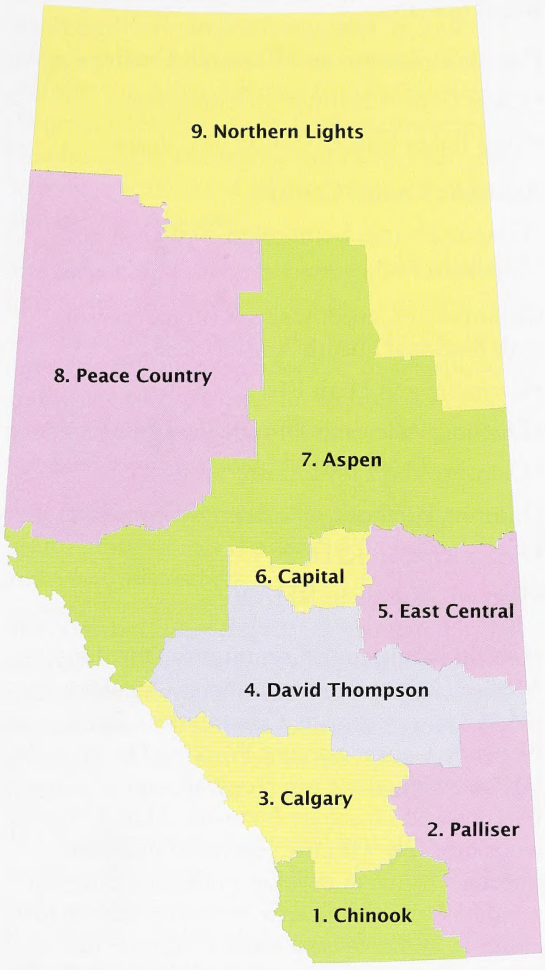
Alberta's Health Authorities

The Alberta Cancer Board is the Provincial Health Authority operating cancer facilities and programs in Alberta. Services include cancer prevention, early detection, diagnosis, treatment, research, and education. Also included in this role is co-ordinating, in co-operation with others, the planning, development, and delivery of provincial cancer initiatives.

Alberta also has nine Regional Health Authorities (RHAs) that are responsible for hospitals, continuing care facilities, community health services, and public health programs in Alberta. They deliver health services in the regions and work with communities to deliver health services to local residents.

Their mandate is to promote health within the regions, respond to regional health needs, and report on performance to the Minister. They work in conjunction with the Alberta Cancer Board to provide cancer control for all Albertans.

Figure 4: Alberta's Regional Health Authorities as of December 2003



Cancer affects all Albertans.

Cancer Control Activities in Alberta

As part of their mandate, the Alberta Cancer Board operates:

Cancer Treatment and Research Facilities

- Cross Cancer Institute in Edmonton
- Tom Baker Cancer Centre in Calgary

Associate Cancer Centres

- Grande Prairie, Lethbridge, Red Deer and Medicine Hat

Community Cancer Centres (in partnership with Regional Health Authorities)

- Canmore and High River in RHA 3
- Drayton Valley and Drumheller in RHA 4
- Camrose and Lloydminster in RHA 5
- Hinton, Barrhead, and Bonnyville in RHA 7
- Peace River in RHA 8
- Fort McMurray in RHA 9

Medical Affairs and Community Oncology

Medical Affairs and Community Oncology (MACO) supports the Community Cancer Network, Cancer Surgery Working Group, Hospice Palliative Care Network, and Psychosocial Oncology Network. MACO works collaboratively with the provincial pediatric oncology teams to develop a pediatric program to address travel concerns and bring treatments closer to home. Special projects include the Alberta Cancer Control Strategy and the Patient Navigation Project. MACO also co-ordinates Alberta's annual Cancer Care conference.

In fulfilling its mission, MACO:

- plans, develops, implements, evaluates, and supports cancer control initiatives in collaboration with internal and external stakeholders, especially RHAs;
- develops partnerships internally and externally to deliver and support effective and efficient quality services for cancer patients and families; and
- strives to achieve and maintain excellence in cancer control programs and services through application of evidence-based standards and guidelines.

Division of Population Health and Information

This division of the Alberta Cancer Board operates a number of cancer prevention, screening, and surveillance initiatives.

The *Cancer Prevention Program* provides assistance and direction on initiatives with the purpose of increasing awareness and promoting behaviour change related to tobacco control, healthy eating, increased physical activity, and reducing exposure to ultraviolet radiation, by supporting healthy lifestyle choices.

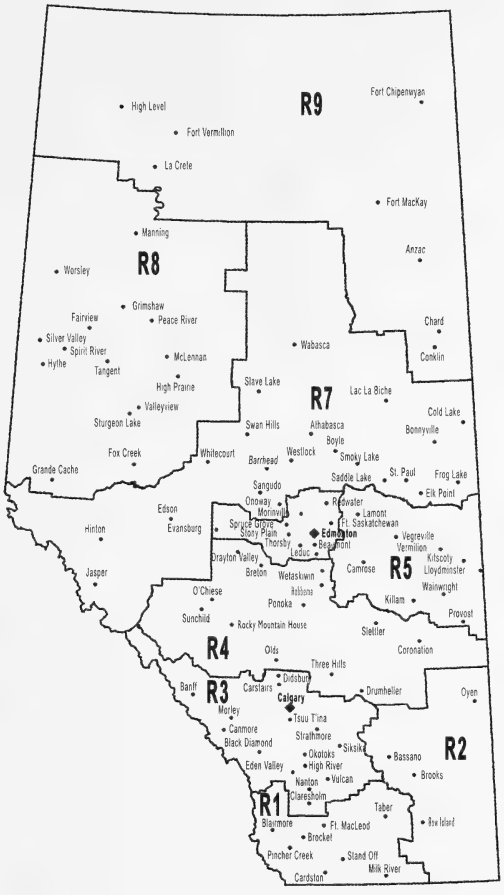
By linking community stakeholders (both traditional health and other external partners) and providing leadership on the Alberta Healthy Living Network, the Cancer Prevention Program encourages diverse efforts in integrated chronic disease prevention.

Services include continuing education seminars through video conferencing, annual professional development conferences, collaborative social marketing campaigns, program development, electronic bulletins, statistical publications, and direct program assistance from outreach co-ordinators.

The *Screening Programs Group* operates in the following areas: Program Development and Co-ordination; Health Promotion; Screening Services; and Information Management and Evaluation.

The group operates *Screen Test: the Alberta Program for the Early Detection of Breast Cancer*, which provides breast health promotion and mammography screening through fixed sites in Calgary and Edmonton, and a mobile mammography service that visits more than one hundred sites across the province (see Figure 5).

Figure 5: ***Screen Test***
Mobile Mammography Sites



In addition, the Screening Programs Group co-ordinates the Alberta Cervical Cancer Screening Program, a collaborative program involving heath professionals, RHAs, and other key stakeholders. The group will also co-ordinate the Alberta Breast Cancer Screening Program (ABCSP), to be implementated in October 2005, and which will co-ordinate the screening activities of all mammography service providers in Alberta.

The Screening Programs Group also monitors new developments in the cancer screening field, varying from new screening technologies to other cancers that are amenable to screening, and works with partners to determine whether new screening programs (such as colorectal cancer screening) should be developed.

A list of prevention and screening resources for health professionals is provided on pages 53 and 54 of this report.

The *Alberta Cancer Registry* is mandated by law under the Cancer Registry Regulation of the Cancer Programs Act. The North American Association of Central Cancer Registries has given a gold certification to the Alberta Cancer Registry in two of the past three years.

The Registry codes diagnosed primary cancers by their site, morphology, and other biological and demographic information. This allows the Registry to provide high-quality surveillance of cancer and its impact in Alberta.

The registry provides anonymized data to enable researchers and health care providers at the Alberta Cancer Board, the RHAs, and universities to monitor cancer trends and plan appropriate cancer-control strategies. Data from the Registry also support ongoing population-based cancer research projects.

The Alberta Cancer Registry submits data to Statistics Canada to be incorporated into the Canadian Cancer Registry, which enables interprovincial and international comparisons of cancer incidence, and also produces an annual report of cancer statistics each year to provide health professionals and policy-makers with information regarding cancer incidence and mortality in Alberta.

The ***Surveillance Group*** provides ongoing surveillance and monitoring of cancer trends (both in general and for specific cancers or the RHAs) in Alberta by analyzing data collected by the Alberta Cancer Registry. A number of basic surveillance measures, such as incidence, mortality, survival, and probabilities of developing or dying of cancer, are generated and published. The Surveillance Group is also active in health services research and in responding to requests for Registry data.

The ***Population Health Research Unit*** conducts epidemiologic research into population-based trends in cancer incidence, morbidity and mortality, the causes of cancer, prevention strategies, and early detection of cancer.

The Tomorrow Project now includes 18,000 adult Albertans who have never been diagnosed with cancer and are between 35 and 69 years of age at the time of enrollment. Participants will regularly contribute information about their diet, health, lifestyle, and occurrence of illnesses over a long period of follow-up (age 85 or death).

With repeated surveys over the long period of follow-up planned, a detailed and complete picture of participants' exposure experience will emerge and the information gathered will facilitate further research in a wide range of cancer-related projects.

Other current research projects in the Population Health Unit focus on the role of physical activity in cancer prevention, rehabilitation, and survival; early detection and screening as a means of cancer control; the role of hormones in the development of cancer; population-based risk factors for cancer; the use of molecular epidemiology in investigating cancer causes and natural history; and the development of biostatistical methods.

Surveillance

Public health surveillance is defined by the U.S. Centers for Disease Control and Prevention (CDC) as "the ongoing systematic collection, analysis, and interpretation of health data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know. The final link in the surveillance chain is the application of these data to prevention and control."*

The Alberta Cancer Board collects information about cancer in the province of Alberta through the Alberta Cancer Registry, a database that tracks all cancer cases and deaths in the province. This information is collected to assess trends in cancer and to facilitate research to study risk factors for disease prevention and cancer control.

The population of Alberta is projected to increase by more than 30% between 2005 and 2025.† This increase means that even if the risk of developing cancer does not change, there will be more cases of cancer.

Another factor to consider is the age structure of the population over time. Because cancer is more common in people over the age of 50 and Alberta's population is aging, the number of cancer cases will continue to grow, and the overall burden of cancer on our health care system will increase.

The effect of "baby boomers" (persons born between 1945 and 1966) on the province's population will have a direct effect on the number of cancer cases as this large population moves into the age group at high risk for cancer.

Figure 6 shows that the increase in the percentage of the population over age 65 has been quite gradual over the past twenty years, from 8.0% to 10.3%. In the next twenty years, we can expect a much steeper increase, from 10.3% now to 17.6% in 2025.

On a regional level, these numbers show that there is significant variation in the age structure among RHAs. For example, in RHA 9, 3.3% of the population will be over age 65 in 2005, compared to 8.6% in RHA 8. These figures indicate that even if cancer *rates* were identical in RHA 8 and 9, there would be a higher *number* of cancer cases expected in RHA 8 because, overall, residents in that area of the province are older and the population is larger.

* Centers for Disease Control. *Comprehensive Plan for Epidemiologic Surveillance.* Atlanta, GA: Centers for Disease Control, 1986.

† Alberta. Health and Wellness. *Population Projections for Alberta and its Health Regions: 2000–2030.* Edmonton: Queen's Printer, 2001.

Figure 6: Alberta Population Distribution Over Time

	1985		2005 (Projected)		2025 (Projected)	
RHA	Population	% over 65	Population	% over 65	Population	% over 65
1	136,431	11.2	162,479	12.9	215,393	17.0
2	80,710	10.7	98,098	12.7	118,633	18.4
3	748,389	7.0	1,172,242	9.3	1,568,458	17.9
4	224,428	10.0	303,193	11.3	401,651	17.4
5	105,325	13.8	114,771	13.8	124,659	20.2
6	787,656	7.3	1,039,326	10.9	1,369,636	18.3
7	151,116	8.3	180,644	10.6	226,484	16.6
8	109,126	6.6	133,326	8.6	166,959	15.4
9	53,804	1.7	74,913	3.3	135,219	8.1
All	2,396,805	8.0	3,278,992	10.3	4,327,092	17.6

Incidence

Incidence describes the frequency of new cancer cases during a period of time and is, therefore, a good way to evaluate the impact of disease. In this report, incidence is expressed as either the number of new invasive cases diagnosed in a year, or the rate of cases per 100,000 population in a one-year period.

Incidence rates are important because when they are age-standardized, they enable comparisons over time or between populations that may differ in factors such as age-distribution or size.

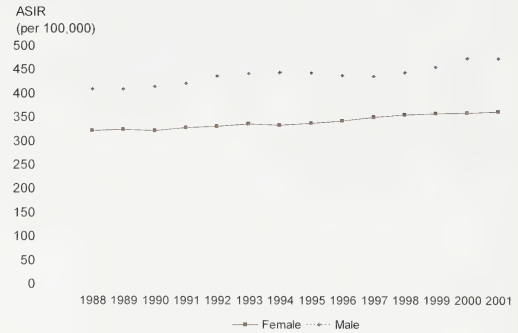
Incidence can be affected by breakthroughs in prevention, research, and for some cancer sites, screening. While the goal of prevention interventions is to decrease incidence, there is always a lag time between the beginning of the intervention and when the resulting change in incidence is observed. Depending on the risk factors and the site of the cancer, it can take as few as five years, or as many as twenty or thirty years.

Number of New Invasive Cases

The diagrams on this page show that while the incidence rates are very gradually increasing (Figure 7), the number of new invasive cases diagnosed each year is increasing dramatically (Figure 8).

This figure also shows the proportions of the most commonly occurring cancers. Half of the total number of cancer cases in women consist of breast, lung, and colorectal cancers. For men, prostate, lung, and colorectal cancers account for more than half of all cases diagnosed each year.

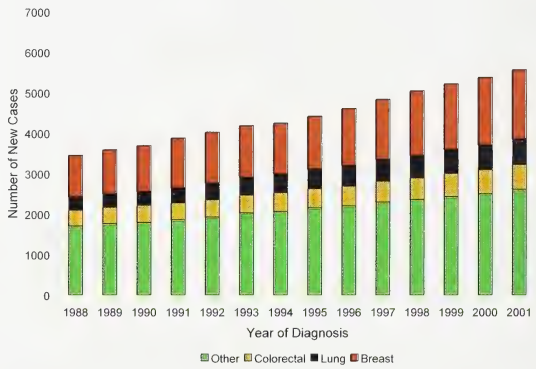
Figure 7: Age-Standardized Incidence Rates (ASIR) for All Invasive Cancers by Gender, Alberta (1988–2001)



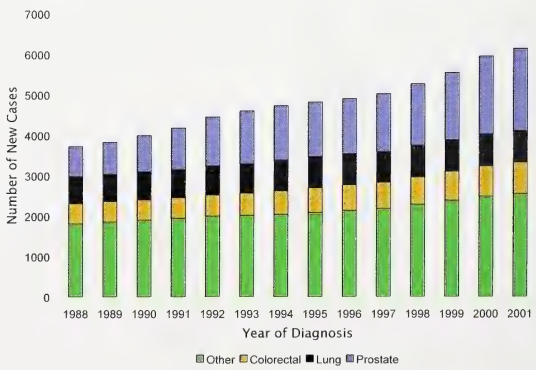
Three-year moving averages are age-standardized to the 1991 Canadian population.

Figure 8: Total Number of New Cases of Invasive Cancer by Gender and by Site, Alberta (1988–2001)

Females



Males



Age-Specific Incidence Rates

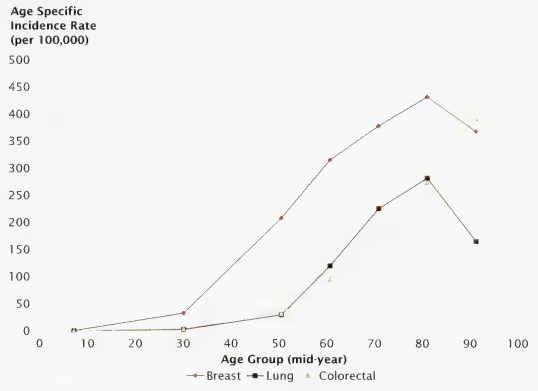
Age-specific incidence rates show the number of cancer cases per 100,000 people for specific age groups. (The age groups used were 0–14, 15–44, 45–54, 55–64, 65–74, 75–84, and 85+, with the mid-points of each group plotted.) The general trend for the four most commonly occurring cancers (prostate, breast, colorectal, and lung) is that the likelihood of developing cancer increases with age.

Figure 9 shows that the trends among cancers differ. Lung, prostate, and colorectal cancers have very low rates up to age 50; whereas, breast cancer shows an appreciable incidence by age 50. For lung, breast, and prostate cancer, the incidence rates decrease after age 80, but rates for colorectal cancer increase.

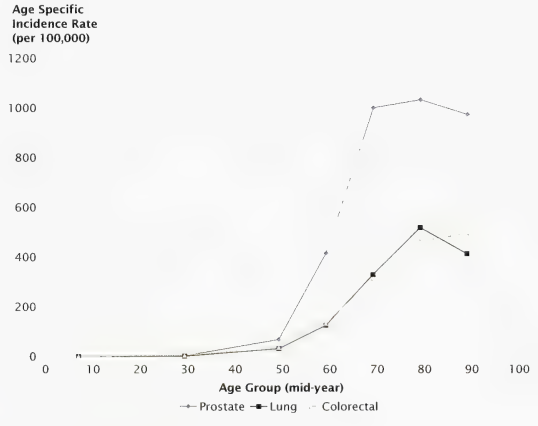
One reason rates for lung, breast, and prostate cancer decline after age 80 is because people die from other causes before being diagnosed with cancer.

Figure 9: Age-Specific Incidence Rates for Invasive Cancers by Gender, Alberta, 2001 (average of 2000–2002)

Females



Males



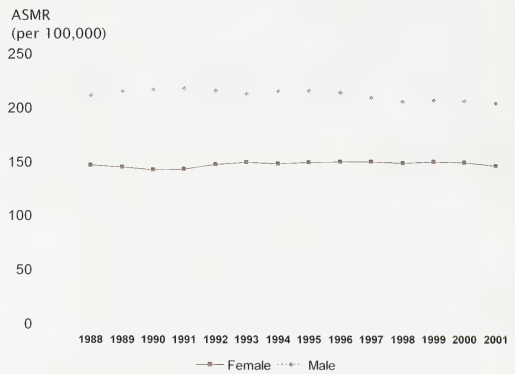
Mortality

Mortality describes the number of deaths due to cancer during a period of time. Mortality rates and counts measure the risk of dying from a particular disease and give some indication of the burden that disease places on society. Prevention, screening, and early detection programs, as well as some treatment options, can affect mortality.

As shown in Figure 10, the overall mortality rates for cancer were fairly stable in both men and women from 1988 through 2001. The increasing number of deaths each year (Figure 11) is primarily due to changes in the population size and age structure.

Lung cancer is the single leading cause of cancer deaths for both men and women. Breast cancer is the second-leading cause among women, while prostate is the second-leading cause among men. However, if the data for women and men are combined, colorectal cancer ranks as the overall second-leading cause of cancer death behind lung cancer.

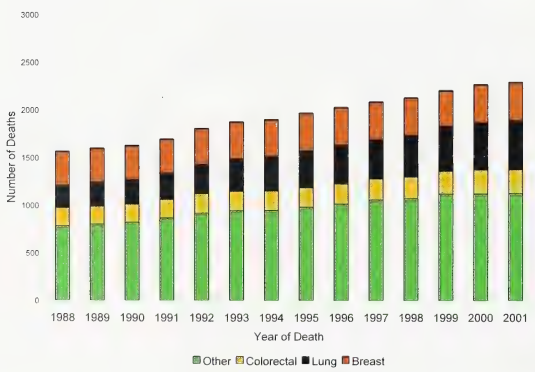
Figure 10: Age-Standardized Mortality Rates for All Invasive Cancers by Gender, Alberta (1988–2001)



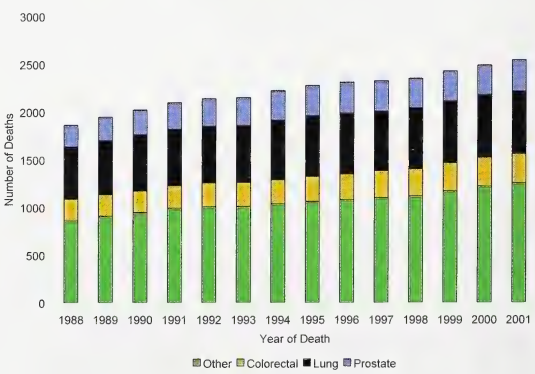
Three-year moving averages are age-standardized to the 1991 Canadian population.

Figure 11: Total Number of Cancer Deaths of Invasive Cancer by Gender and by Site, Alberta (1988–2001)

Females



Males



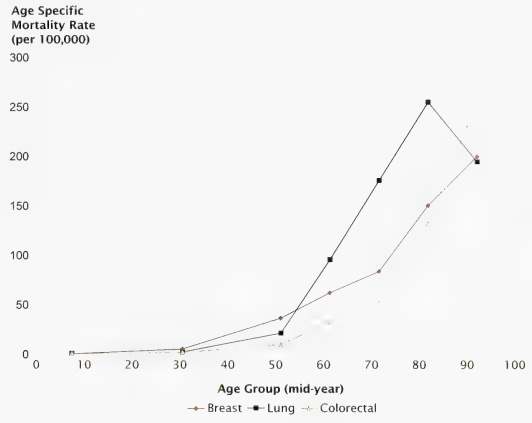
Age-Specific Mortality Rates

Age-specific mortality rates indicate the number of cancer deaths per 100,000 people for each age group.

Figure 12 shows that mortality rates increase as people age. These rates are attributable to the increased incidence of cancer with age. Decreases over age 80 reflect the fact that while many people develop cancer, they often die of other causes.

Figure 12: Age-Specific Mortality Rates for Invasive Cancers by Gender, Alberta, 2001 (average of 2000–2002)

Females



Males

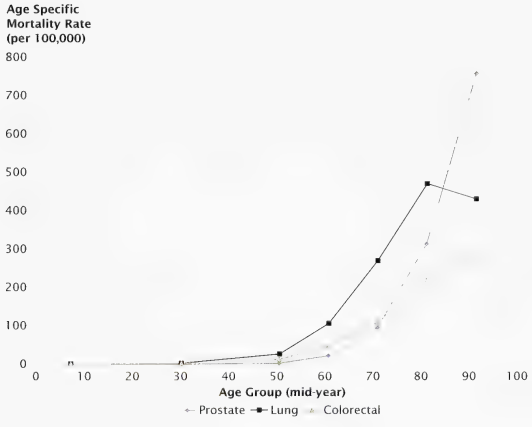


Figure 13: Age-Standardized Incidence Rates (ASIR) by RHA with 95% Confidence Intervals for All Invasive Cancers,* Alberta, 2001 (average of 2000–2002)

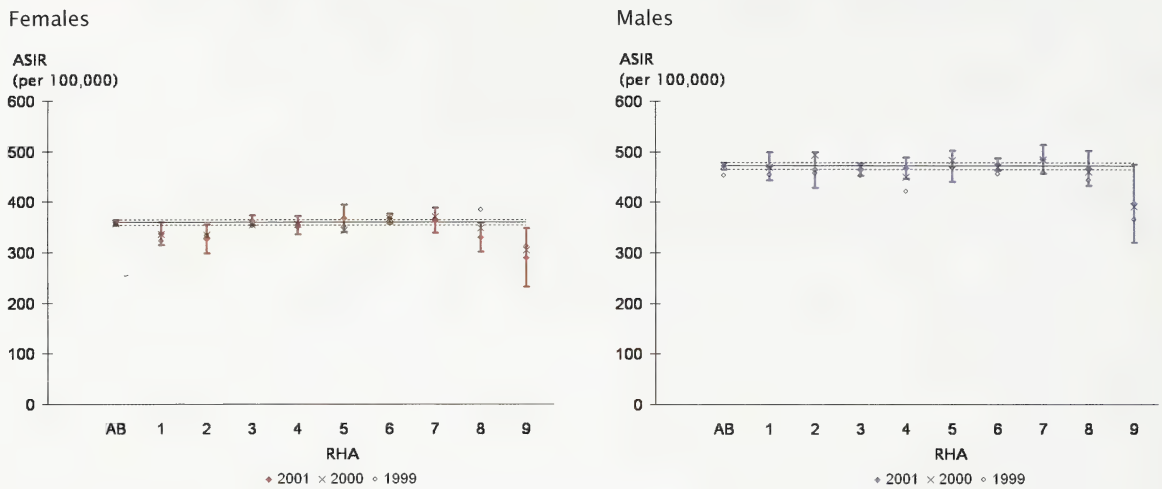
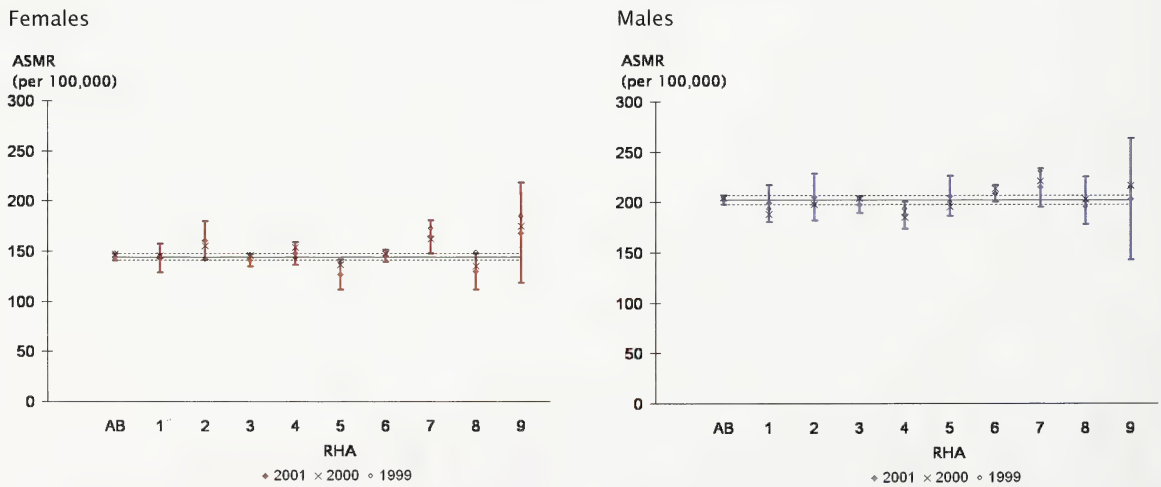


Figure 14: Age-Standardized Mortality Rates (ASMR) by RHA with 95% Confidence Intervals for All Invasive Cancers,* Alberta, 2001 (average of 2000–2002)



* Excluding non-melanoma skin cancer

Three-year moving averages are age-standardized to the 1991 Canadian population.

Incidence and Mortality Rates by RHA

Age-standardized incidence and mortality rates vary little from year-to-year within most RHAs. Some variation is observed among RHAs, especially RHAs with smaller populations, because even with three-year averages, small numbers may result in erratic estimates.

Although there is some variation between regions and some fluctuations year-to-year within regions, none of the regions consistently display incidence or mortality rates that are statistically different from the provincial average. See page 46 for details on interpreting incidence and mortality rates by RHA.

Cancer Trends

New Cases

The graphs show that changes in population size and age structure are the most important factors responsible for the increasing impact of cancer in Alberta. As the population continues to age and grow, there will be a concurrent rise in the number of cancer cases each year.

The coloured line on the graphs represents the number of cases that occurred in 1988.

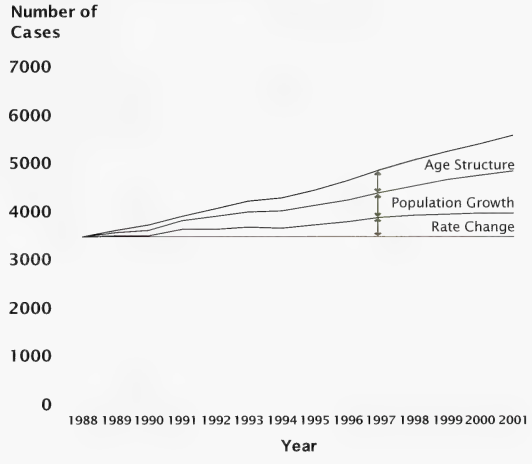
The lowest black line represents the total number of cases that would have occurred each year if the cancer incidence rates alone had changed but the population had remained the same as in 1988.

The centre line represents the number of cases that would have occurred each year if the yearly rates had occurred within a population that grew larger but maintained the same age distribution as in 1988.

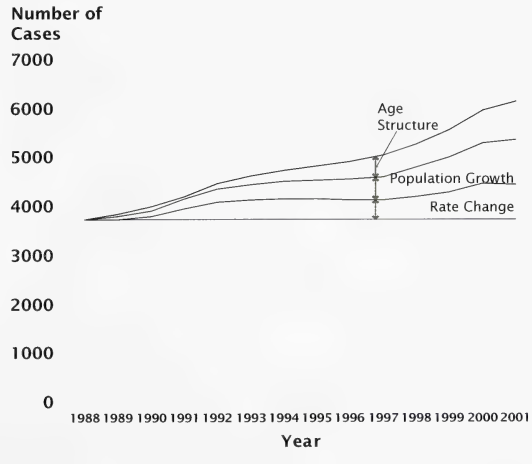
The top line represents the number of cases that actually occurred. This line reflects the combined impact of rate change, population growth, and aging population.

Figure 15: Trends in the Number of New Cases Attributed to Cancer Rate, Population Growth and Population Age Structure, All Cancers, All Ages (1988–2001)

Females



Males



The Risk of Developing and Dying of Cancer

The probabilities of developing and dying of cancer are averages over the entire Alberta population experience and should not be applied to a particular individual.

Someone diagnosed with a cancer has a substantially higher probability of dying of cancer than a healthy person not diagnosed with cancer, and a person diagnosed with one cancer has a substantially higher probability of developing another cancer or cancers in the future.

The probability of developing cancer varies with an individual's age and gender. For example, a newborn female has a 40.8% probability of developing cancer during her entire lifetime (see Figure 16).

These overall probabilities can be broken down into specific cancers. Continuing this example, the newborn female with a 40.8% probability of developing any cancer during her lifetime has a 12.5% chance of developing breast cancer and a 5.9% chance of developing lung cancer during her lifetime.

The probabilities can also be examined by various age sections. At age 60, a woman will have a 10.2% chance of developing any cancer within the next ten years of her life, and a 0.2% chance of developing cervical cancer by age 70.

The probability of dying of cancer has a similar interpretation (see Figure 17). For example, a newborn male has a 26.1% probability of dying of cancer. At age 60, he has a 0.5% probability of dying of prostate cancer before he is 70. This figure jumps to 1.7% from age 70 to age 80.

These probabilities take into account the probability of dying of other causes before developing or dying of cancer.

For further information regarding the calculation of these statistics, please consult page 52 of this report.

Figure 16: Probability of Developing Cancer in Alberta

Females

Probability (Percentage) of Developing Cancer Within Next Ten Years						Lifetime Probability of Developing Cancer	
Current Age	40	50	60	70	80	Percentage	One in:
Any cancer	3.0	6.6	10.2	14.5	15.0	40.8	2.5
Breast	1.4	2.6	3.1	3.7	3.3	12.5	8.0
Lung	0.1	0.7	1.5	2.5	1.8	5.9	16.9
Colorectal	0.2	0.6	1.3	2.1	2.8	6.1	16.4
Cervical/Uterine	0.2	0.2	0.2	0.1	0.1	1.0	100.0
Non-Hodgkin's Lymphoma	0.1	0.3	0.4	0.5	0.6	1.7	58.8
Pancreas	0.0	0.1	0.3	0.5	0.7	1.4	71.4
Melanoma	0.2	0.2	0.3	0.4	0.3	1.5	66.7

Males

Probability (Percentage) of Developing Cancer Within Next Ten Years						Lifetime Probability of Developing Cancer	
Current Age	40	50	60	70	80	Percentage	One in:
Any cancer	1.6	5.4	15.1	24.4	24.3	46.7	2.1
Prostate	0.2	1.5	6.4	9.7	8.2	18.2	5.5
Lung	0.1	0.6	1.8	3.8	3.4	7.2	13.9
Colorectal	0.1	0.7	2.2	3.4	3.0	6.8	14.7
Non-Hodgkin's Lymphoma	0.2	0.3	0.4	0.7	0.6	1.8	55.6
Pancreas	0.0	0.1	0.4	0.6	0.7	1.3	76.9
Melanoma	0.2	0.3	0.4	0.5	0.6	1.6	62.5

Figure 17: Probability of Dying from Cancer in Alberta

Females

Current Age	Probability (Percentage) of Dying from Cancer Within Next Ten Years 40	50	60	70	80	Lifetime Probability of Dying from Cancer Percentage	One in:
Any cancer	0.7	2.2	4.5	7.9	10.2	23.3	4.3
Breast	0.2	0.4	0.7	1.0	1.3	3.2	31.3
Lung	0.1	0.5	1.3	2.1	2.0	5.2	19.2
Colorectal	0.1	0.2	0.4	0.8	1.4	2.7	37.0
Cervical/Uterine	0.0	0.1	0.1	0.1	0.1	0.3	333.3
Non-Hodgkin's Lymphoma	0.0	0.1	0.2	0.3	0.4	1.0	100.0
Pancreas	0.0	0.1	0.2	0.4	0.6	1.3	76.9
Melanoma	0.0	0.0	0.1	0.1	0.1	0.2	500.0

Males

Current Age	Probability (Percentage) of Dying from Cancer Within Next Ten Years 40	50	60	70	80	Lifetime Probability of Dying from Cancer Percentage	One in:
Any cancer	0.5	2.2	6.0	11.6	14.6	26.1	3.8
Prostate	0.0	0.1	0.5	1.7	3.5	4.2	23.8
Lung	0.1	0.6	1.8	3.3	3.1	6.5	15.4
Colorectal	0.1	0.3	0.9	1.4	1.6	3.1	32.3
Non-Hodgkin's Lymphoma	0.0	0.1	0.3	0.5	0.5	1.1	90.9
Pancreas	0.0	0.1	0.4	0.5	0.6	1.2	83.3
Melanoma	0.0	0.0	0.1	0.1	0.1	0.3	333.3

Projections

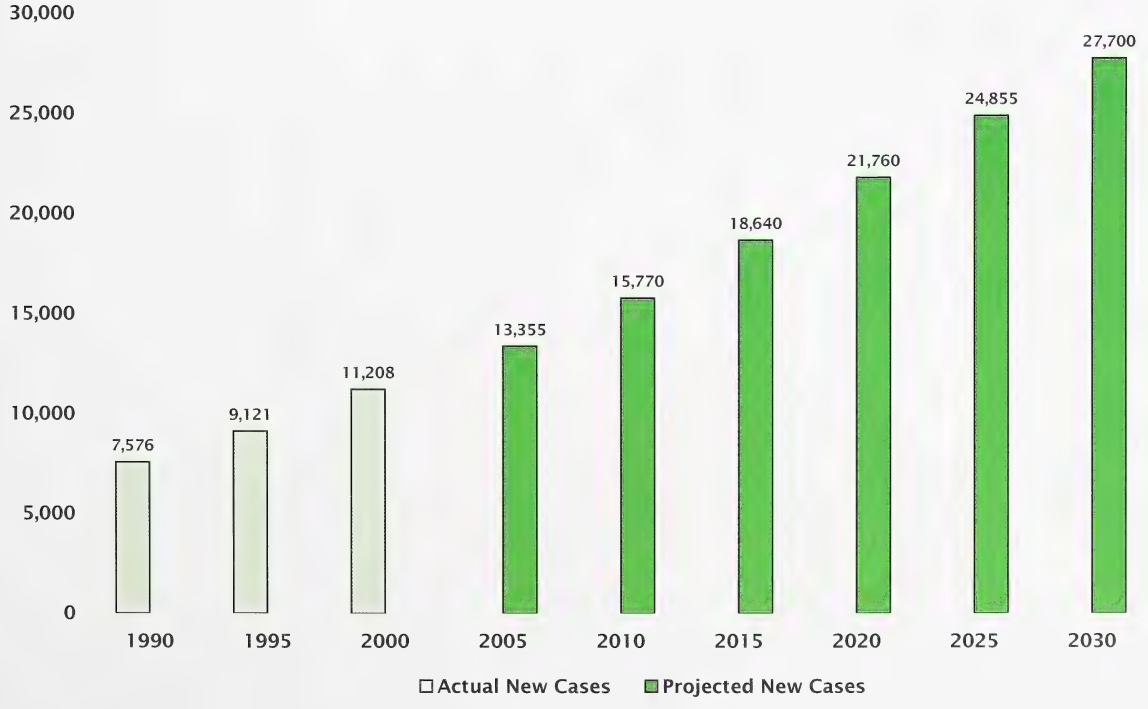
The projected number of new cancer cases in Alberta for 2005–2030 is shown in Figure 18.

These projections assume that the age-specific rates of cancer incidence witnessed during the last five years in Alberta will continue into the future. Population estimates from Alberta Health and Wellness* have been used in the projections.

Taking into consideration age structure and population growth while assuming constant cancer rates, the Alberta Cancer Board has estimated that a dramatic increase in cases can be expected to continue for the next twenty-five years.

The number of new cancer cases will almost double in the next twenty years.

Figure 18: Actual and Projected Number of New Cases of Invasive Cancer, Alberta, 1990–2030



* Alberta. Health and Wellness. *Population Projections for Alberta and its Health Regions: 2000–2030.* Edmonton: Queen's Printer, 2001.

Cancer Survival

Relative survival rates are determined by comparing the death rates in cancer patients with the death rates in the general population.

Survival rates are important not only because they indicate the proportion of people who will be alive at a given point after they have been diagnosed with cancer, but also because they may allow the effectiveness of cancer control programs to be evaluated.

The number of years a person survives after being diagnosed with cancer depends on several factors: site of the cancer, stage of cancer at diagnosis, type of cells affected, age at diagnosis and treatment.

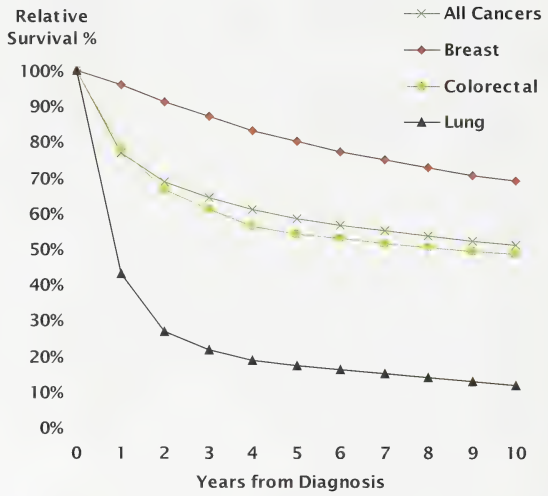
Figure 19 illustrates the ten-year survival curves of Albertans diagnosed with cancer between 1985 and 1993: that is, tracing Albertans for ten years after their diagnosis. Those cases not known to be dead were censored either at the date they left the province or December 21, 1999.

Survival rates vary dramatically among sites. The survival rates for prostate and breast cancer are much higher than those for colorectal cancer. In turn, survival rates for colorectal cancer are better than the survival rates for lung cancer.

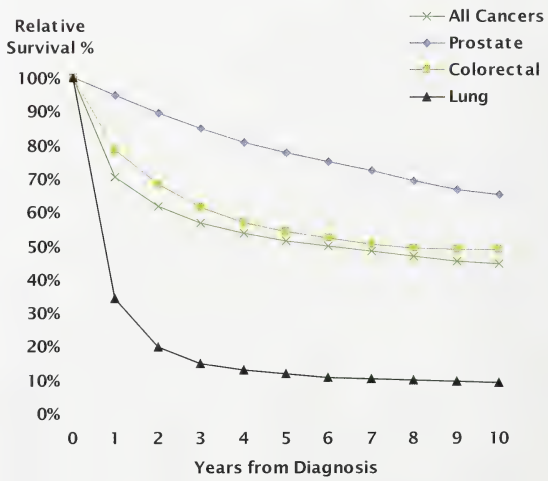
Incidence, mortality, and survival rates all help to determine the burden of cancer in our society. These figures give us an overall picture of how many people are likely to develop cancer, how many will survive the disease, and how many will die from it. These figures may also give some indication of how changes in detection programs and new technologies in treatment affect cancer statistics in the province in general.

Figure 19: Relative Survival Curves, Alberta, (cases diagnosed 1985-1993)

Females



Males



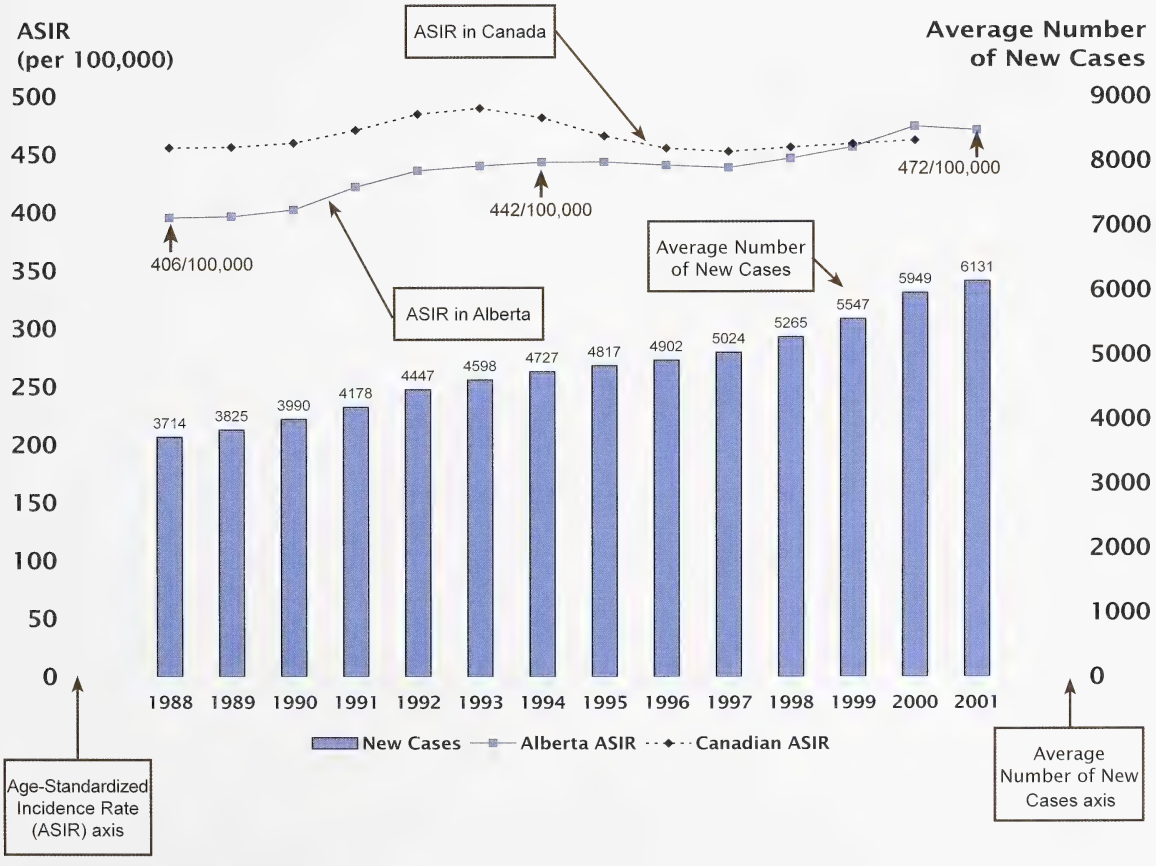
Age-Standardized Incidence and Mortality Rates Over Time

The illustrations below and on page 24 show the most salient information needed to interpret the figures detailing specific site data.

A key feature of these graphs to remember is that three-year moving averages are used. For example, the bar labelled 2001 is the average of 2000, 2001, and 2002 data.

For a complete and detailed explanation of these figures, please refer to page 44.

Age-Standardized Incidence Rates (ASIR) and New Cases for All Invasive Cancers, Males, Alberta, (1988–2001)



Three-year moving averages are age-standardized to the 1991 Canadian population.

For comparative purposes, age-standardized incidence rates for the whole of Canada are included. While the most current Alberta data extends to 2002 (shown in the 2001 average), the most recent Canadian data only extends to 2001 (shown in the 2000 average).

Age-Standardized Incidence and Mortality Rates by RHA

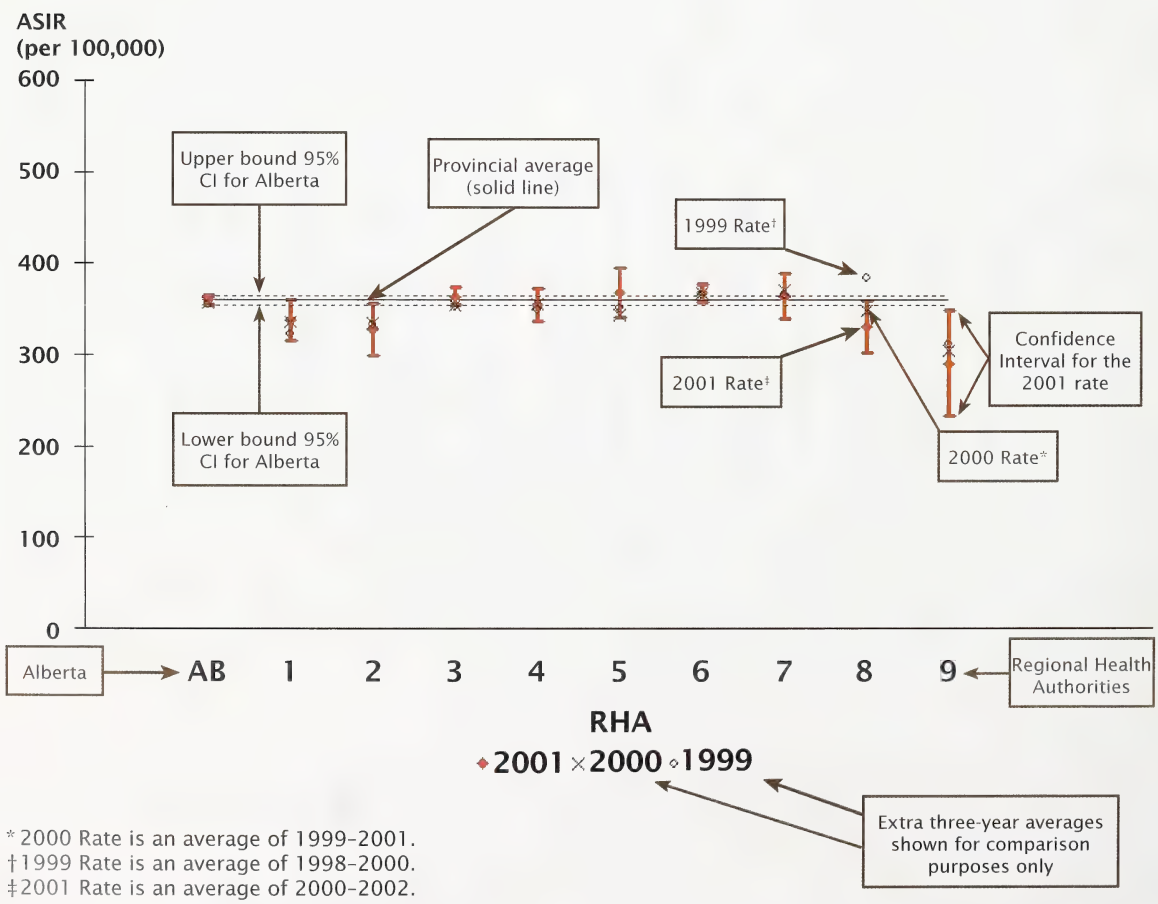
The illustrations below and on the previous page show the most salient information needed to interpret the figures detailing specific site data.

These graphs can be difficult to interpret. To consider current rates, focus on the solid diamond (◆), which is the rate based on 2000, 2001, and 2002 data. The variability in this rate estimate is shown by its Confidence Interval (CI), represented by the I bar.

To consider rates over time in a particular RHA, focus on the the solid diamond (◆) representing the 2001 rate, the (×) symbol representing the 2000 rate, and the open circle (○) representing the 1999 rate.

For a complete and detailed explanation of these figures, please refer to page 44.

Age-Standardized Incidence Rates (ASIR) by RHA with 95% Confidence Intervals (CI) for All Invasive Cancers Females, Alberta, 2001 (average of 2000-2002)



* 2000 Rate is an average of 1999-2001.
†1999 Rate is an average of 1998-2000.
‡2001 Rate is an average of 2000-2002.

Lung Cancer

Incidence

Lung cancer incidence numbers and rates have been increasing dramatically over the past twenty years: the number of lung cancer cases for women in the year 2000 is 3.5 times the number of cases in 1980. This rising trend reflects an increase in smoking behaviour among women thirty to forty years ago, when women were actively targeted by tobacco advertising.

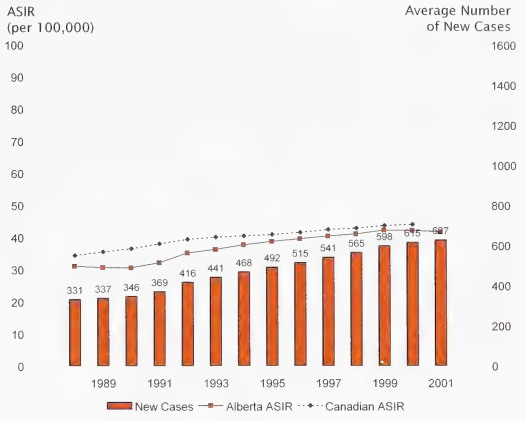
Educational and policy efforts to discourage smoking have been very effective. Women's smoking rates peaked near 30% in the late 1960s, levelled off during the 1970s, and eventually declined to about 24% in 2002.* This reduction should lead to a decrease in lung cancer incidence among women in the future. If current efforts to persuade current smokers to quit and to prevent young women from ever starting continue, these rates will decline even further.

The declining trend in lung cancer incidence among men reflects their decreasing smoking prevalence that began twenty to thirty years earlier. This decline in smoking prevalence is continuing and should be reflected as further reductions in future lung cancer incidence rates.

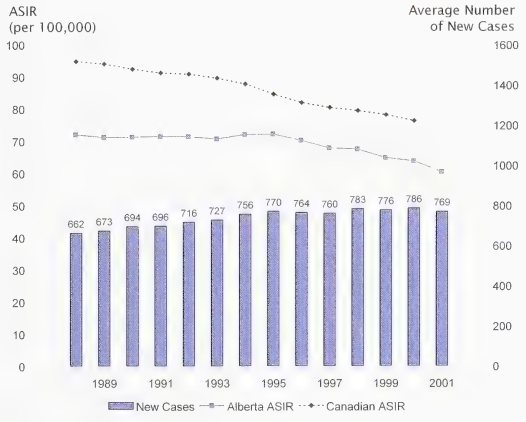
Unfortunately, the reduction in lung cancer rates in men is counterbalanced by the influence of an aging population to keep the number of cases relatively the same. The large number of cases occurring in both sexes for a largely preventable cancer continues both to be a major cause for concern and to have a substantial impact on the health care system.

Figure 20: Age-Standardized Incidence Rates (ASIR) and New Cases for Invasive Lung Cancer, Alberta, (1988–2001)

Females



Males



Three-year moving averages are age-standardized to the 1991 Canadian population.

For comparative purposes, age-standardized incidence rates for the whole of Canada are included. While the most current Alberta data extends to 2002 (shown in the 2001 average), the most recent Canadian data only extends to 2001 (shown in the 2000 average).

* Canada. Health Canada, *Canadian Tobacco Use Monitoring Survey*, (Ottawa, February–December 2002) Table 3. Ottawa: Queen's Printer, 2003.

Mortality

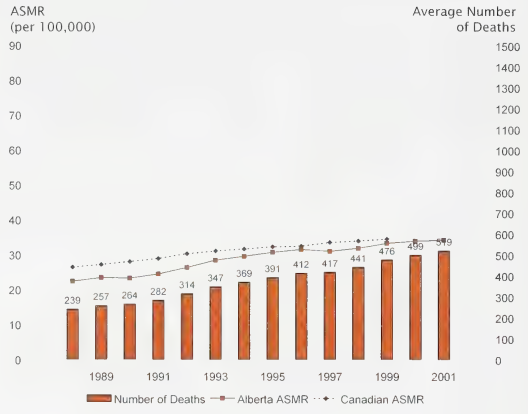
Since 1995, lung cancer has been the leading cause of cancer deaths for Alberta women and has long been the leading cause of cancer deaths for Alberta men.

The mortality trends for lung cancer for both women and men are very similar to their corresponding incidence trends. Lung cancer has a high fatality rate; therefore, the number of deaths per year is almost as high as the number of new cases.

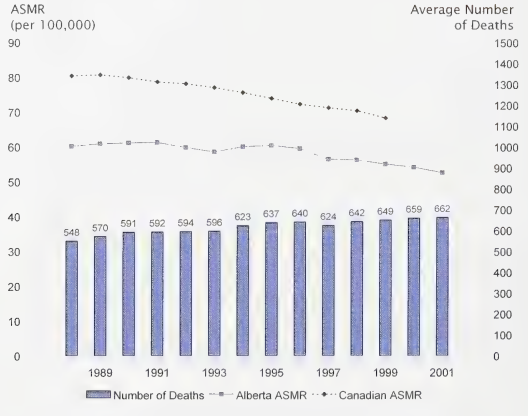
Even though mortality rates among men are falling overall, they are still higher than mortality rates for women due to higher smoking prevalence thirty years ago for men.

Figure 21: Age-Standardized Mortality Rates (ASMR) and the Number of Deaths for Invasive Lung Cancer, Alberta, (1988–2001)

Females



Males



Trends in lung cancer incidence and mortality follow past trends in smoking patterns.

Three-year moving averages are age-standardized to the 1991 Canadian population.

For comparative purposes, age-standardized mortality rates for the whole of Canada are included. While the most current Alberta data extends to 2002 (shown in the 2001 average), the most recent Canadian data only extends to 2000 (shown in the 1999 average).

Figure 22: Age-Standardized Incidence Rates (ASIR) by RHA with 95% Confidence Intervals for Invasive Lung Cancer, Alberta, 2001 (average of 2000–2002)

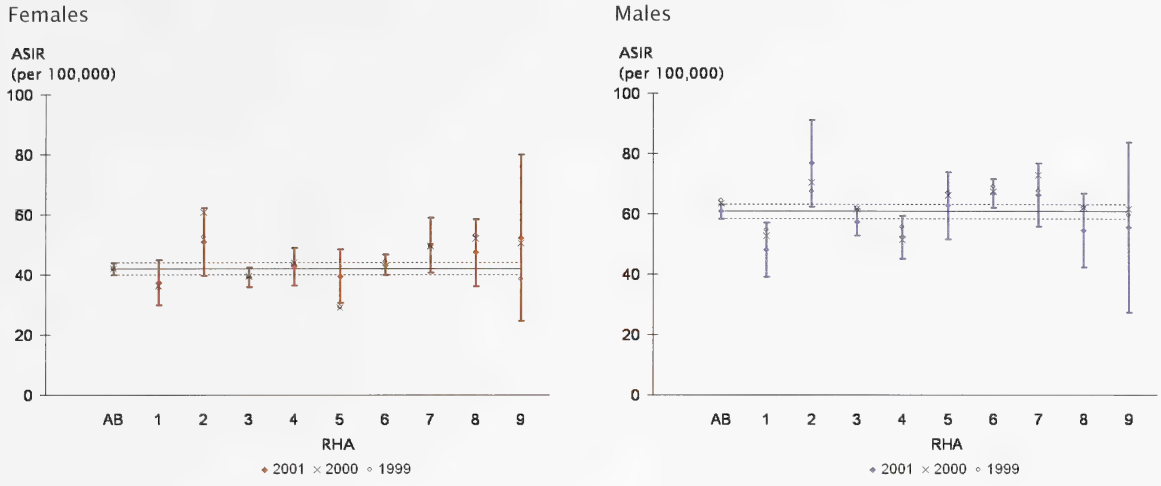
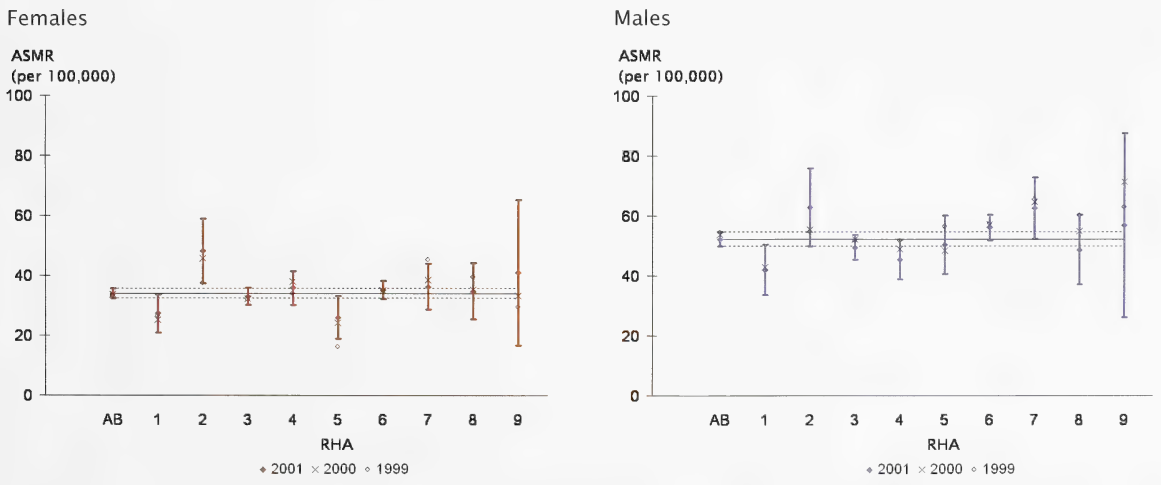


Figure 23: Age-Standardized Mortality Rates (ASMR) by RHA with 95% Confidence Intervals for Invasive Lung Cancer, Alberta, 2001 (average of 2000–2002)



Three-year moving averages are age-standardized to the 1991 Canadian population.

Incidence and Mortality Rates by RHA

There is variability in lung cancer incidence rates among the RHAs, but note the large confidence intervals which indicate the lack of precision of the rates that occurs with smaller numbers. Since lung cancer incidence is strongly related to smoking patterns, this variation of rates may be a reflection of past smoking patterns. In general, there is a small year-to-year variation in the RHA-specific rates.

The patterns of the RHA age-standardized mortality rates for lung cancer are similar to the age-standardized incidence patterns. The age-standardized mortality rates also show high variability for RHAs with small populations. Fluctuations are monitored to see if they continue over a number of years or whether they are random.

Colorectal Cancer

Incidence

The age-standardized incidence rates for colorectal cancer in Alberta women showed a gradual downward trend from 1988 until 1992 and have been increasing since 1998 for reasons that are unclear.

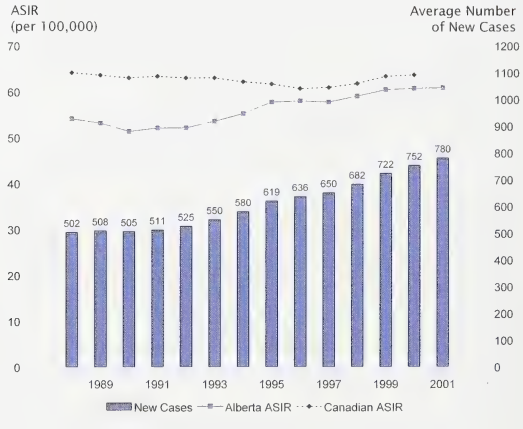
The age-standardized incidence rates for colorectal cancer in men show the same trends as for women. Alberta's incidence rates for colorectal cancer in both men and women are slightly lower than the Canadian rates.

Colorectal cancer is much more common in affluent countries, where obesity, sedentary lifestyles, and diets low in vegetable and fruit consumption have been identified as important risk factors.*

Figure 24: Age-Standardized Incidence Rates (ASIR) and New Cases for Invasive Colorectal Cancer, Alberta, (1988-2001)

Females

Males



Physical activity and a diet high in vegetables and fruit can help prevent colorectal cancer.

Three-year moving averages are age-standardized to the 1991 Canadian population.

For comparative purposes, age-standardized incidence rates for the whole of Canada are included. While the most current Alberta data extends to 2002 (shown in the 2001 average), the most recent Canadian data only extends to 2001 (shown in the 2000 average).

* World Health Organization, *World Cancer Report. Colorectal Cancer.* Edited by B. Stewart and P. Kleihues. Lyon, France: IARC Press, 2003.

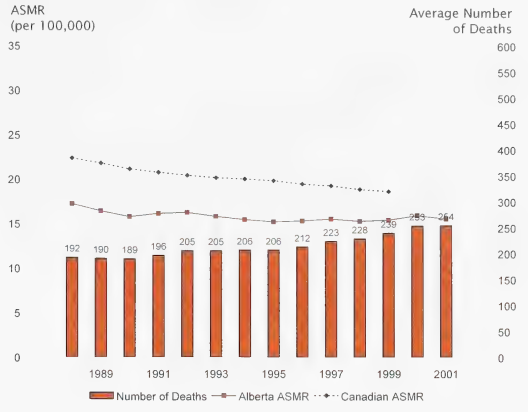
Mortality

Age-standardized mortality rates for men and women are gradually decreasing, which may be due to the patterns of incidence and improvements in treatment. Mortality rates for men have fluctuated over time and continue to be higher than rates for women.

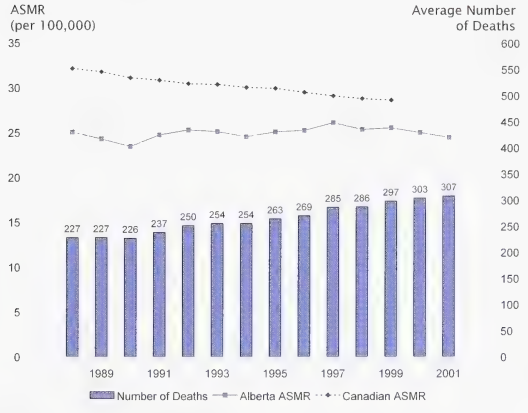
Screening and early detection can improve colorectal cancer survival rates. National recommendations for organized screening programs have recently been developed.*

Figure 25: Age-Standardized Mortality Rates (ASMR) and the Number of Deaths for Invasive Colorectal Cancer, Alberta, (1988–2001)

Females



Males



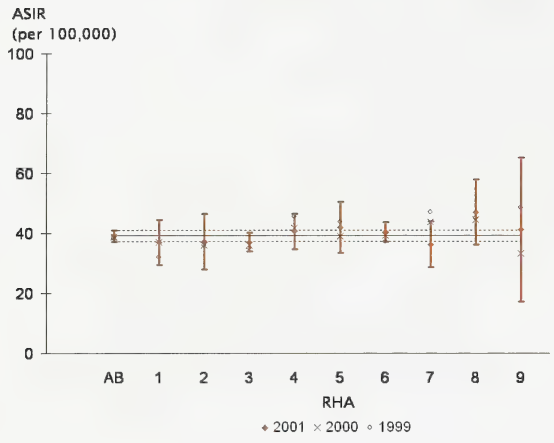
Three-year moving averages are age-standardized to the 1991 Canadian population.

For comparative purposes, age-standardized mortality rates for the whole of Canada are included. While the most current Alberta data extends to 2002 (shown in the 2001 average), the most recent Canadian data only extends to 2000 (shown in the 1999 average).

* National Committee on Colorectal Cancer Screening. *Recommendations for Population-based Colorectal Cancer Screening.* Available at: http://www.hc-sc.gc.ca/pphb-dgspsp/publicat/nccs-cndcc/.

Figure 26: Age-Standardized Incidence Rates (ASIR) by RHA with 95% Confidence Intervals for Invasive Colorectal Cancer, Alberta, 2001 (average of 2000–2002)

Females



Males

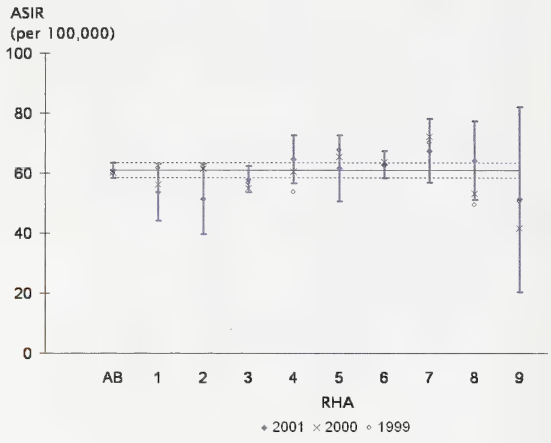
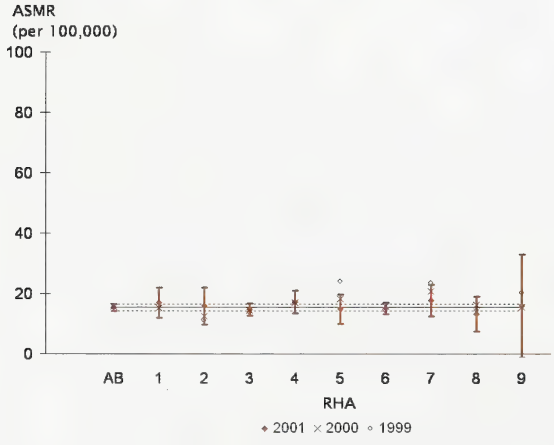
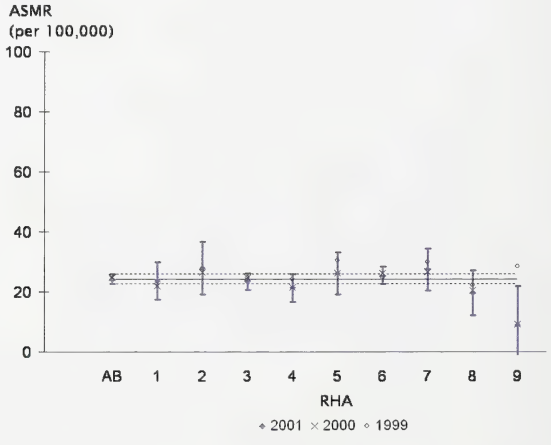


Figure 27: Age-Standardized Mortality Rates (ASMR) by RHA with 95% Confidence Intervals for Invasive Colorectal Cancer, Alberta, 2001 (average of 2000–2002)

Females



Males



Three-year moving averages are age-standardized to the 1991 Canadian population.

Incidence and Mortality Rates by RHA

Almost all confidence intervals include the provincial average and are therefore not significantly different from the provincial average.

In general, there is little yearly variation in the RHA-specific rates. However, as can be noticed from the scale, the provincial average incidence rate is higher for men than for women.

RHA 9 shows male mortality rates below average but this is probably an anomaly due to erratic fluctuations in the small population numbers. In previous years, the incidence and mortality rates in RHA 9 were higher.

Breast Cancer

Incidence

The introduction of screening mammography caused a surge in incidence rates in the early 1990s by detecting some breast cancer cases earlier than they would have been diagnosed without the screening. After this, breast cancer rates returned to the trend of gradual increase.

Having a mother or sister diagnosed with breast cancer increases a woman's risk of developing breast cancer, but 80% of women who develop breast cancer have no family history of the disease. Obesity in post-menopausal women also increases their risk of breast cancer.

A current Alberta Cancer Board research project is investigating the connection between reducing risk for breast cancer and physical activity.

Mortality

Figure 29 illustrates that breast cancer mortality rates are steadily decreasing, which likely reflects both the impact of mammography screening and improvements in treatment.

Organized mammography screening programs have been shown to be effective in reducing mortality for women aged 50–69, but evidence for effectiveness in women 40–49 is less clear.

The fact that incidence rates increased while mortality rates decreased reflects better survival for diagnosed cases. The incidence and mortality rates in Alberta and Canada are very similar.

Figure 28: Age-Standardized Incidence Rates (ASIR) and New Cases for Invasive Breast Cancer, Females, Alberta, (1988–2001)

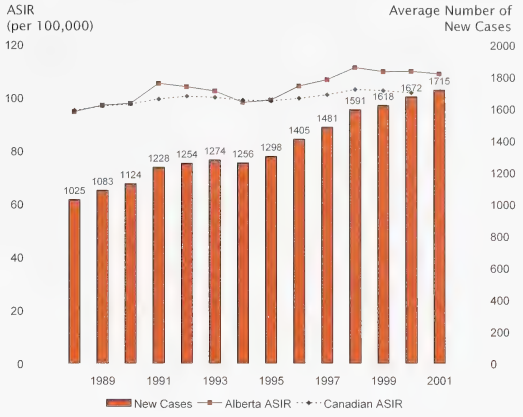
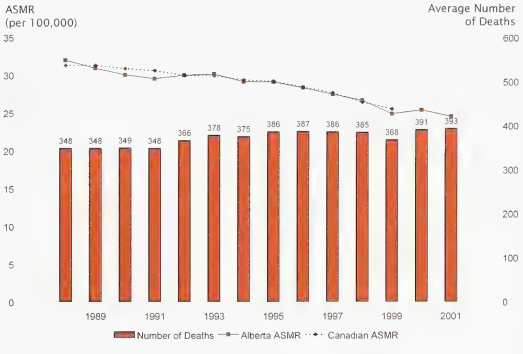


Figure 29: Age-Standardized Mortality Rates (ASMR) and the Number of Deaths for Invasive Breast Cancer, Females, Alberta, (1988–2001)



Three-year moving averages are age-standardized to the 1991 Canadian population.

For comparative purposes, age-standardized incidence and mortality rates for the whole of Canada are included. While the most current Alberta data extends to 2002 (shown in the 2001 average), the most recent Canadian data only extends to 2001 (shown in the 2000 average) for incidence rates, and only extends to 2000 (shown in the 1999 average) for mortality rates.

Incidence and Mortality Rates by RHA

There is some variability in breast cancer incidence among the RHAs with smaller populations, but note the large confidence intervals, indicating a lack of precision with small numbers.

Figure 30: Age-Standardized Incidence Rates (ASIR) by RHA with 95% Confidence Intervals for Invasive Breast Cancer, Females, Alberta, 2001 (average of 2000–2002)

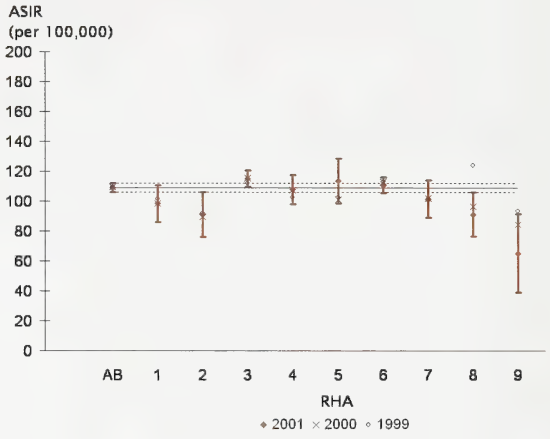
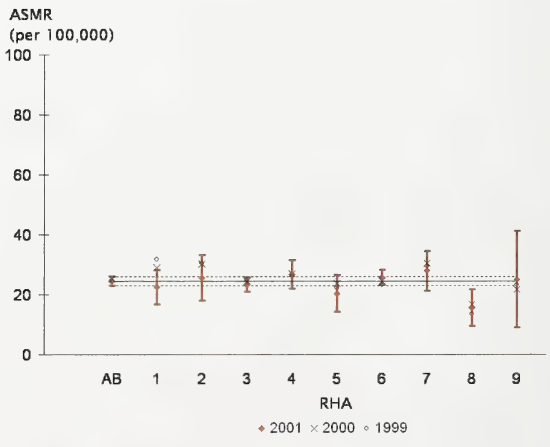


Figure 31: Age-Standardized Mortality Rates (ASMR) by RHA with 95% Confidence Intervals for Invasive Breast Cancer, Females, Alberta, 2001 (average of 2000–2002)



Organized mammography screening programs have been shown to be effective in reducing mortality for women aged 50 to 69.

Three-year moving averages are age-standardized to the 1991 Canadian population.

Prostate Cancer

Incidence

The increased incidence of prostate cancer between 1980 and 1990 was partly due to increased detection of these cancers following the introduction of a medical procedure called Trans-Urethral Resection of the Prostate (TURP) for suspected benign prostatic hypertrophy.

The sharp increase since 1990 is predominantly the result of increased detection using the Prostate Specific Antigen (PSA) Test that became available in Alberta in 1989. The testing resulted in early detection of clinically unsuspected cancers—some of which may have been found later and others that may never have been diagnosed—because of the high prevalence of latent prostate cancer.

Autopsy studies have found that between 60% and 70% of men over age 80 had latent prostate cancer, that is, they had evidence of prostate cancer although they had no clinical symptoms.* These data, along with negative impacts caused by prostate cancer diagnosis and treatment, and the fact that PSA testing has not been proven as a screening tool, have caused some controversy around screening for prostate cancer. The goal of screening programs is to reduce mortality, and to date, there is no evidence from randomized controlled trials that screening has reduced prostate cancer mortality.†

The pattern of high incidence rates is seen throughout Canada. Despite the sharp increase in incidence from 1990 to 1993, and the increase since 1996, there has not been an associated increase in mortality.

Mortality

Age-standardized mortality rates have been relatively stable since 1990.

Figure 32: Age-Standardized Incidence Rates (ASIR) and New Cases for Invasive Prostate Cancer, Males, Alberta, (1988–2001)

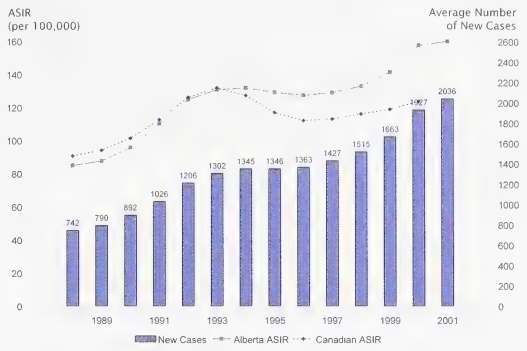
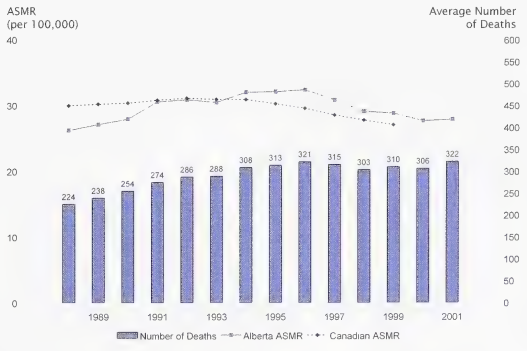


Figure 33: Age-Standardized Mortality Rates (ASMR) and the Number of Deaths for Invasive Prostate Cancer, Males, Alberta, (1988–2001)



Three-year moving averages are age-standardized to the 1991 Canadian population.

For comparative purposes, age-standardized incidence and mortality rates for the whole of Canada are included. While the most current Alberta data extends to 2002 (shown in the 2001 average), the most recent Canadian data only extends to 2001 (shown in the 2000 average) for incidence rates, and only extends to 2000 (shown in the 1999 average) for mortality rates.

* Lenhard, R.E., Osteen, R.T., and Gansler, T.S. *Clinical Oncology*. American Cancer Society/Blackwell Science Inc., 2001.

† Readers looking for a review of prostate cancer screening issues are referred to: National Cancer Institute. *Prostate, lung, colorectal and ovarian (PLCO) cancer screening trial.* Bethesda, MD: National Cancer Institute, 2003. Available at http://www3.cancer.gov/prevention/plco/ and Barry, J.M., *Prostate-Specific-Antigen Testing for Early Diagnosis of Prostate Cancer*, New England Journal of Medicine. May 2001, 344 (18) 1373.

Incidence and Mortality Rates by RHA

The incidence rates show considerable fluctuations year-to-year within regions, but the 2001 incidence rates are generally higher in the southern RHAs and lower in the northern RHAs. This geographic difference in rates may reflect different patterns of PSA testing in the province, but other explanations are also possible. Trends will continue to be monitored by the Alberta Cancer Board.

There is less variation across RHAs and by year in mortality compared to the variability in incidence rates. None of the rates are statistically significantly different from the provincial average. This observation adds strength to the suggestion that the higher incidence in some areas may be due to differences in detection patterns.

Figure 34: Age-Standardized Incidence Rates (ASIR) by RHA with 95% Confidence Intervals for Invasive Prostate Cancer, Males, Alberta, 2001 (average of 2000–2002)

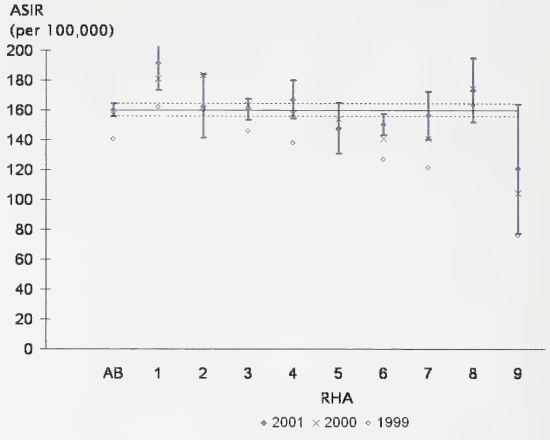
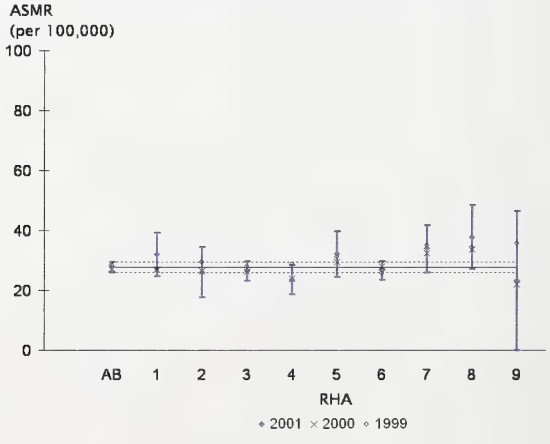


Figure 35: Age-Standardized Mortality Rates (ASMR) by RHA with 95% Confidence Intervals for Invasive Prostate Cancer, Males, Alberta, 2001 (average of 2000–2002)



Higher incidence in some areas may be due to differences in detection patterns.

Three-year moving averages are age-standardized to the 1991 Canadian population.

Cervical Cancer

Incidence

Figure 36 indicates that there is a substantial year-to-year variation in the Alberta age-standardized incidence rates, likely due to the relatively small number of cases at the provincial level. Although Canadian rates have shown a steady decline in the last decade, the trend in Alberta is not as clear. There appears to have been a recent increase in the Alberta ASIR, but until more recent data is available, it will not be known whether this is due to a true increase in incidence or simply variation due to small numbers.

The general downward trend in national incidence rates is most likely due to Pap smear screening, which can prevent the incidence of invasive cervical cancer by detecting pre-cancers when they can be effectively treated before developing into cancer.

Further reduction in incidence rates is expected with the full implementation of the Alberta Cervical Cancer Screening Program (ACCSP), co-ordinated by the Alberta Cancer Board. The program will focus on increasing participation by underscreened women, improving screening services, and ensuring women with abnormal screening tests receive appropriate follow-up and treatment.

Mortality

Cervical cancer has a very good prognosis when detected and treated early; therefore, the mortality rates are considerably lower than the incidence rates. Nonetheless, 39 Alberta women died in 2001 from cervical cancer and most of those deaths could have been prevented.

Cervical cancer is linked to infection with Human Papillomavirus (HPV). Women who smoke are at higher risk for developing cervical cancer. Other risk factors include a weakened immune system and infection with other sexually transmitted agents.

Figure 36: Age-Standardized Incidence Rates (ASIR) and New Cases for Invasive Cervical Cancer, Females, Alberta, (1988-2001)

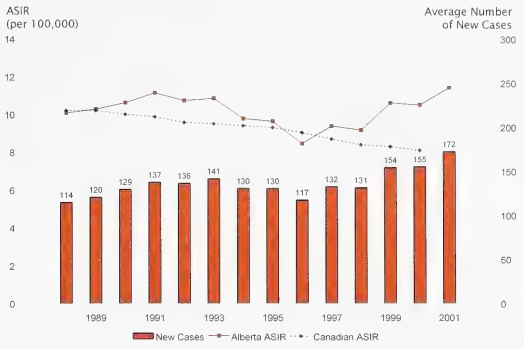
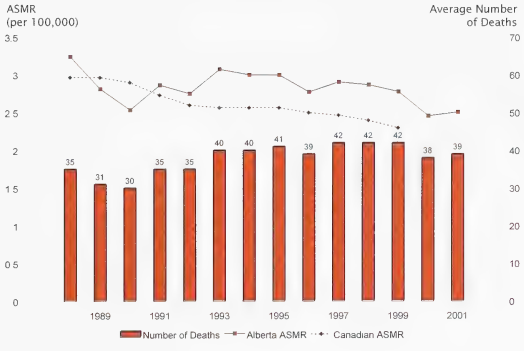


Figure 37: Age-Standardized Mortality Rates (ASMR) and the Number of Deaths for Invasive Cervical Cancer, Females, Alberta, (1988-2001)



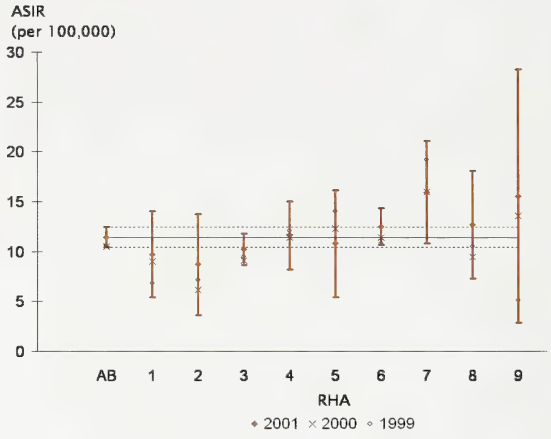
Three-year moving averages are age-standardized to the 1991 Canadian population.

For comparative purposes, age-standardized incidence and mortality rates for the whole of Canada are included. While the most current Alberta data extends to 2002 (shown in the 2001 average), the most recent Canadian data only extends to 2001 (shown in the 2000 average) for incidence rates, and only extends to 2000 (shown in the 1999 average) for mortality rates.

Incidence Rates by RHA

There is some variation in rates and wide confidence intervals are displayed for 2001, especially for those RHAs with small populations, however, these are not considered to be statistically significant. The regional mortality rates are not presented for cervical cancer because the small number of deaths makes regional fluctuations difficult to interpret.

Figure 38: Age-Standardized Incidence Rates (ASIR)* by RHA with 95% Confidence Intervals for Invasive Cervical Cancer, Females, Alberta, 2001 (average of 2000–2002)



There appears to be a general downward trend in national incidence rates that is most likely due to Pap smear screening.

Three-year moving averages are age-standardized to the 1991 Canadian population.

Melanoma Skin Cancer

Incidence

Melanoma skin cancer showed a sharp increase from 1992 to 1995, largely due to a change in cancer registration coding procedures. In 1993, the Alberta Cancer Registry adopted the North American Association of Central Cancer Registries (NAACCR) coding rules as developed by the Surveillance, Epidemiology and End Results Program (SEER)—this method of coding captured more cancers.

Since 1995, rates among women have stayed steady, while rates among men have generally increased. This increase is being monitored to see if the rates will continue to increase or level off.

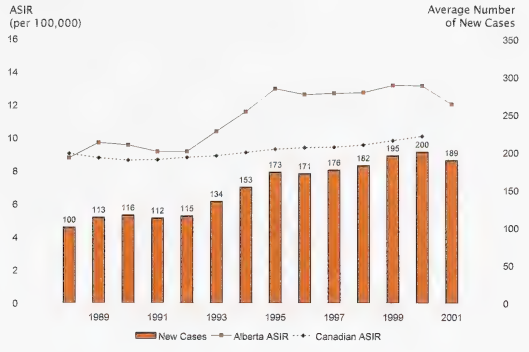
Mortality data are not included for melanoma skin cancer. Even though it is the most serious form of skin cancer, the survival rate is very high when detected and treated early.

Reducing exposure to ultraviolet radiation, especially among children, is the most effective measure associated with reducing both melanoma and non-melanoma skin cancers. Fair-skinned people and those who spend time outdoors, either occupationally or recreationally, are at increased risk of developing skin cancer.

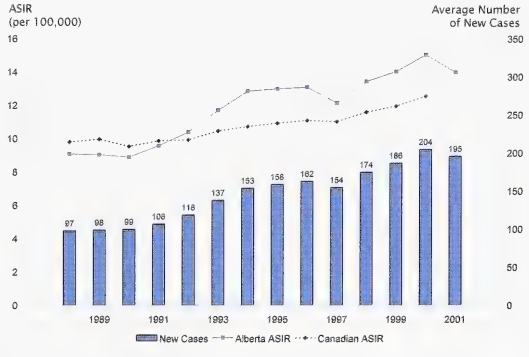
Safe sun practices, such as wearing protective clothing, applying sunscreen, seeking shade, and avoiding tanning salons are the most effective ways to protect against skin cancer.

Figure 39: Age-Standardized Incidence Rates (ASIR) and New Cases for Invasive Melanoma Skin Cancer, Alberta, (1988–2001)

Females



Males



Three-year moving averages are age-standardized to the 1991 Canadian population.

For comparative purposes, age-standardized incidence rates for the whole of Canada are included. While the most current Alberta data extends to 2002 (shown in the 2001 average), the most recent Canadian data only extends to 2001 (shown in the 2000 average).

Non-Hodgkin's Lymphoma

Incidence

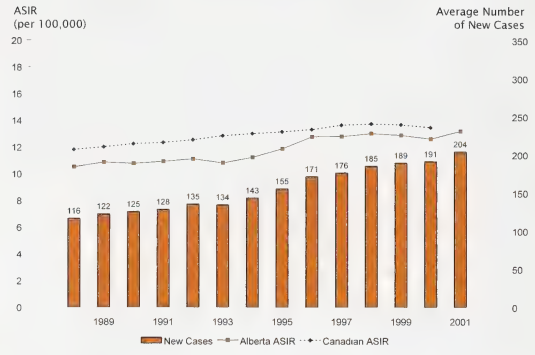
Non-Hodgkin's lymphoma age-standardized incidence rates have been slightly increasing in women and men: this increase is similar to the pattern seen in Canada as a whole.

Little of the increase in non-Hodgkin's lymphoma can be explained by known viral or environmental risk factors*, although drugs, carcinogens, or infectious agents (such as HIV), may create immunosuppressive conditions associated with increased incidence of non-Hodgkin's lymphoma.

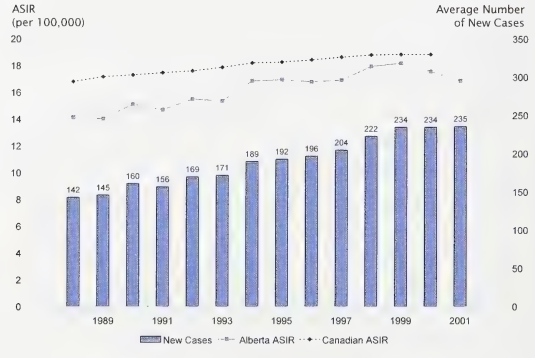
The increase in incidence may also be affected by an improved ability to detect and classify this disease.

Figure 40: Age-Standardized Incidence Rates (ASIR) and New Cases for Non-Hodgkin's Lymphoma, Alberta, (1988–2001)

Females



Males



Three-year moving averages are age-standardized to the 1991 Canadian population.

For comparative purposes, age-standardized incidence rates for the whole of Canada are included. While the most current Alberta data extends to 2002 (shown in the 2001 average), the most recent Canadian data only extends to 2001 (shown in the 2000 average).

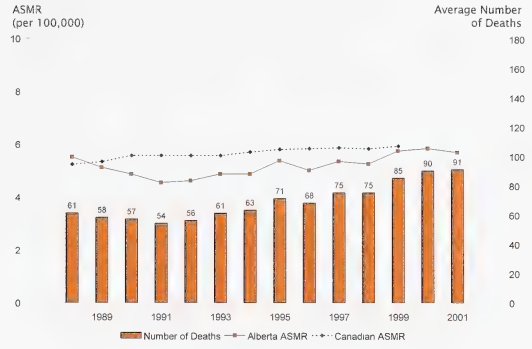
* Camelos, G.P., Lister, A., and Sklar, J. *The Lymphomas*. Philadelphia: W.B. Saunders Company, 1998, p. 58.

Mortality

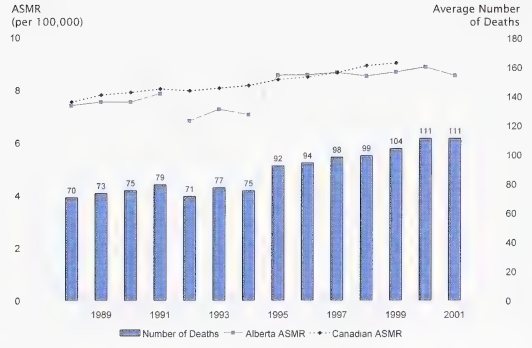
Similar to age-standardized incidence rates, mortality rates are slightly higher for men than for women.

Figure 41: Age-Standardized Mortality Rates (ASMR) and the Number of Deaths for Non-Hodgkin's Lymphoma, Alberta, (1988-2001)

Females



Males



Three-year moving averages are age-standardized to the 1991 Canadian population.

For comparative purposes, age-standardized mortality rates for the whole of Canada are included. While the most current Alberta data extends to 2002 (shown in the 2001 average), the most recent Canadian data only extends to 2000 (shown in the 1999 average).

Pediatric Cancer

Incidence

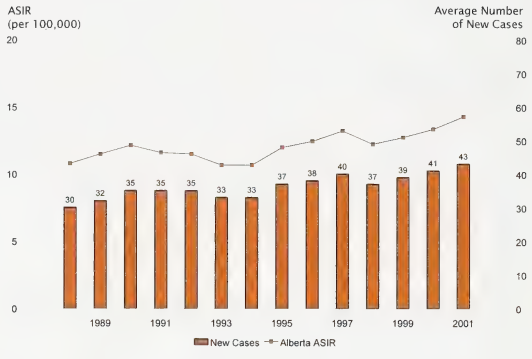
Cancer is much less common in children than in adults, and the types of cancer seen in children differ from the common cancers in adults. The most common in Alberta children are leukemia, lymphoma, brain cancer, and spinal cancer.

The causes of cancer in children and adults are different. In adults, many cancers are due to a long pattern of lifestyle factors such as exercise, diet, and tobacco consumption, which do not play a role in pediatric cancer. Genetic factors appear to play a larger role in pediatric cancer.

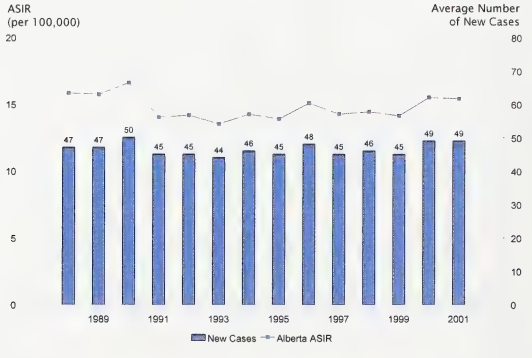
The incidence rates of pediatric cancer have remained relatively stable since the 1980s.

Figure 42: Age-Standardized Incidence Rates (ASIR) and New Cases for Invasive Pediatric Cancer (less than 15 years of age), Alberta, (1988-2001)

Females



Males



Three-year moving averages are age-standardized to the 1991 Canadian population.

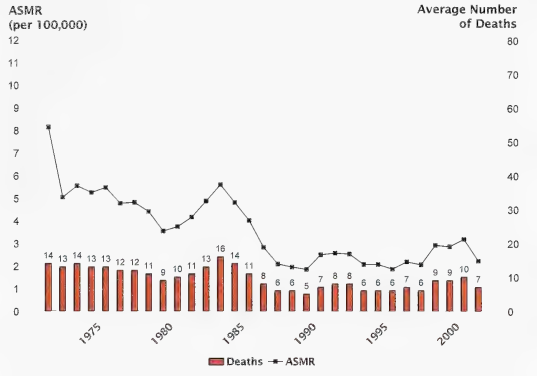
Mortality

Today, many cancers in children are successfully treated. In 2001, the rates were very similar: 1.9 per 100,000 boys and 2.2 per 100,000 girls died from pediatric invasive cancer.

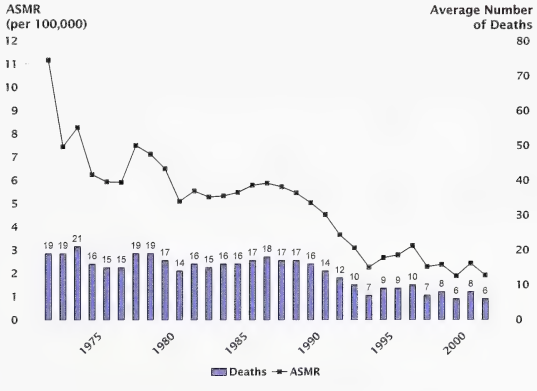
Over the past thirty years, there has been a marked improvement in survival for children with cancer due to advances in treatment resulting from cancer research.

Figure 43: Age-Standardized Mortality Rates (ASMR) and the Number of Deaths for Invasive Pediatric Cancer (less than 15 years of age), Alberta, (1971-2001)

Females



Males



Advances in treatment have reduced childhood cancer mortality rates by 67% since 1960.

Three-year moving averages are age-standardized to the 1991 Canadian population.

Pancreatic Cancer

Mortality

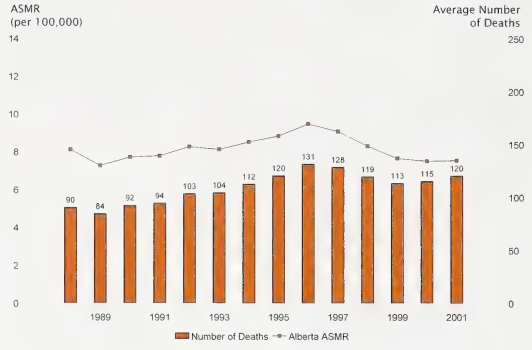
Incidence data are not included for pancreatic cancer because mortality rates are so similar to incidence rates. Mortality gradually increased in women up to 1996, and subsequently appears to be decreasing. In men, it has decreased over the whole period. Although this cancer accounts for only 2% of incident cancers in 2002, it was the sixth-leading cause of cancer deaths in Alberta due to its low survival rate. There is little variation in mortality rates for pancreatic cancer among the RHAs (data not shown).

Besides age, the only well-established risk factor for pancreatic cancer is smoking.* Although the cause of most cases of pancreatic cancer is unknown, diet may also be a factor, and hereditary risk is evident in up to 10% of cases. Pancreatic cancer occurs more often in people who have diabetes than in people who do not. Exposure to the pulp and paper or petrochemical industries, as well as mining, may also be associated with an increased incidence of pancreatic cancer.

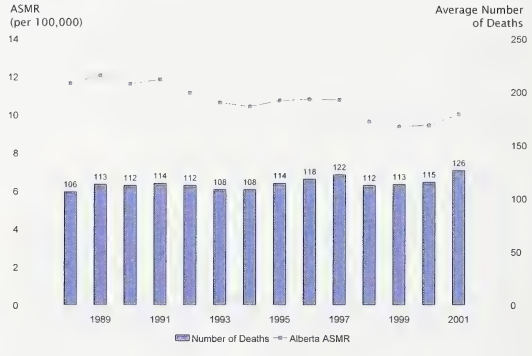
There are no current effective screening tests available for this disease.

Figure 44: Age-Standardized Mortality Rates (ASMR) and the Number of Deaths for Invasive Pancreatic Cancer, Alberta, (1988–2001)

Females



Males



Three-year moving averages are age-standardized to the 1991 Canadian population.

* Stephens, F.O. *The Increased Incidence of Cancer of the Pancreas.* Australian New Zealand Journal of Surgery. May 1999, 69 (5) 331.

Three-Year Averages

The statistics in this report, including the number of cases, number of deaths, ASIR (age-standardized incidence rates), and ASMR (age-standardized mortality rates) are presented as three-year averages. Averages are used to smooth out year-to-year fluctuations so that the underlying trend may be more easily observed. This smoothing of trends is especially important when the number of cancer cases per year is relatively small. Three-year averages also more accurately reflect the situation in RHAs, especially the smaller ones, where year-to-year variability can be quite large.

To calculate a three-year average for the number of events, the annual numbers are summed for three years and divided by three. For example, in Figure 45, the number of cases for all invasive cancers in Alberta men in 1994 is calculated by adding the total number of invasive cancers that occurred in 1993, 1994, and 1995, then dividing by three. As shown in Figure 45, there were an average of 4,727 cases of invasive cancers in Alberta men in 1994.

The three-year averages for age-specific rates are calculated using the number of events occurring in three years and dividing by the total population in the age range for the three years of interest. ASIRs and ASMRs are then calculated from the age-specific rates.

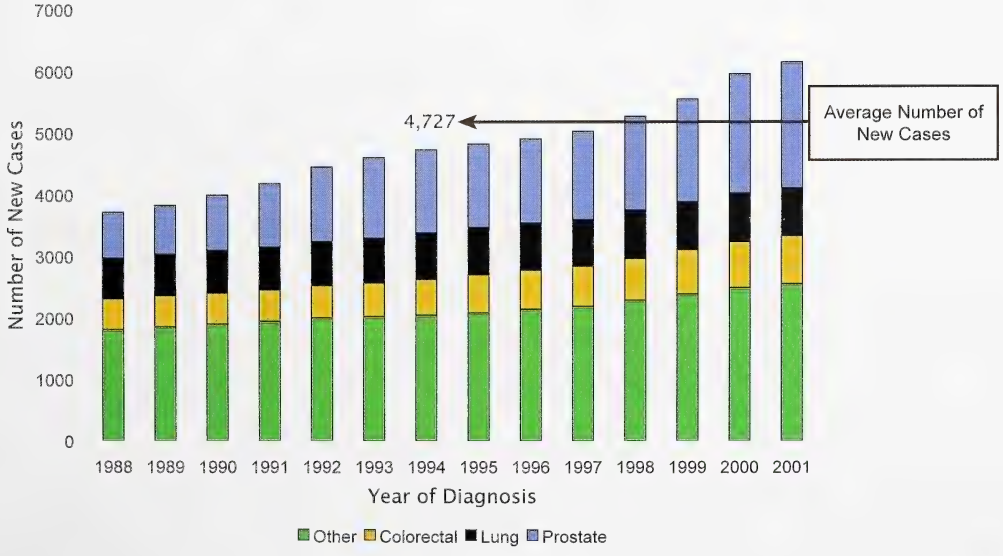
Average Number of New Cases and Deaths

In the body of this report, the average number of new cases and deaths are presented as three-year averages.

The number of deaths is also presented as a three-year average and calculated in the same manner as new cases. Age-specific incidence and mortality rates are also presented as three-year averages.

The projections and the detailed figures in the Regional Health Authority inserts are **not** three-year averages.

Figure 45: Total Number of New Cases of Invasive Cancer (Excluding Non-Melanoma Skin Cancer), Males, Alberta (average of 1988–2001)



Age-Specific Incidence and Mortality Rates

Age-specific incidence rates are used to compare the incidence of cancer among age groups. Age-specific incidence rates indicate the number of new cases that occur during a year in a specific age group, expressed as a rate per 100,000 persons in that age group. The age groups used were 0–14, 15–44, 45–54, 55–64, 65–74, 75–84, and 85+.

The lines on Figure 46 (below) indicate the age-specific rates for prostate, lung, and colorectal cancers in Alberta for 2001. For example, the age-specific rate for prostate cancer in 75- to 84-year-old Alberta males plotted at age 80 in 2001 was 1,034 cases per 100,000.

Usually, the incidence of cancer varies sharply across age groups. Note that the incidence rate for these invasive cancers is much higher in men in the 65–74, 75–84, and 85+ age groups compared with the younger age groups. In this report, age-specific graphs are only presented for lung, colorectal, prostate, and breast cancers. For more information on age-specific rates for individual sites, please see the *Alberta Cancer Registry Annual Report of Cancer Statistics.*

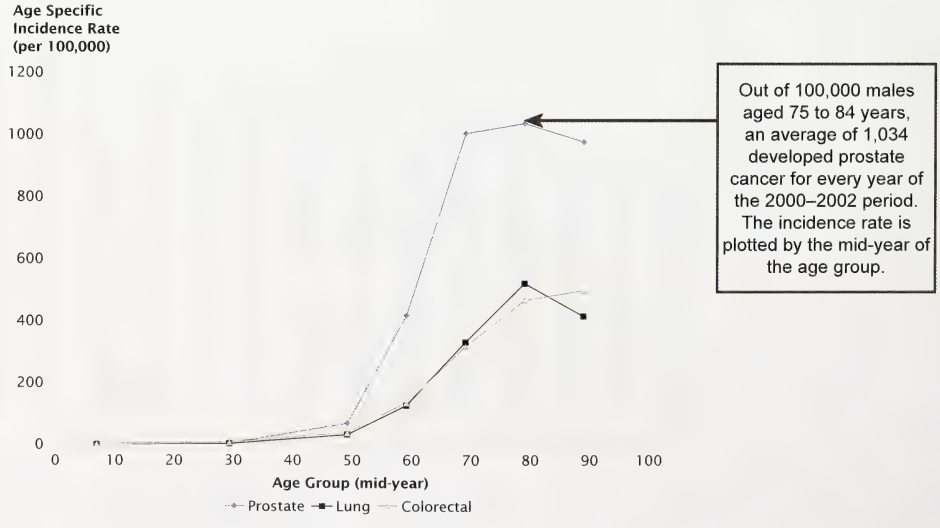
Age-specific mortality rates are expressed in the same manner.

Age-Standardized Incidence and Mortality Rates Over Time

Age-standardized incidence and mortality rates (ASIR and ASMR) are used to compare cancer rates among populations where the population structures are different. These are also used to identify trends over time when the population age structure changes. The age-standardized rate is a weighted average of the age-specific rates, using a standard population distribution. The standardized rates reflect the overall incidence rate (or mortality rate) that would be expected if the population of interest had an age structure identical to the standard population.

To calculate ASIRs (or ASMRs), the actual rates (age-specific rates) of cancer in the Alberta population are applied to a standard population (the 1991 Canadian population). For example, the rate of cancer in each age group for 2001 in Alberta is applied to the 1991 Canadian population to determine the 2001 ASIR (or ASMR).

Figure 46: Age-Specific Incidence Rates for Prostate, Lung, and Colorectal Cancers, Males, Alberta, 2001 (average of 2000–2002)



Alberta's population is aging and cancer incidence rates rise with age; therefore, the number of cases of cancer is increasing. *It is important to note that the increased number of cases does not mean that the rate of cancer is increasing.* Comparing the number of cases of cancer in the younger and smaller 1988 population to the older and larger 2001 population gives an indication of the increased burden on the health care system, but does not indicate trends in the underlying disease rates.

Note in Figure 47 (below) that the number of new cases for all invasive cancers in males increased from 3,714 in 1988 to 6,131 in 2001 as indicated on the blue bars. This increase is substantial and has a major impact on the resources needed to care for patients with cancer. Using ASIRs (the incidence rate for all invasive cancers in males standardized to the 1991 Canadian population), we see an increase from 406/100,000 in 1988 to 442/100,000 in 1992, and then an increase to 472/100,000 in 2001.

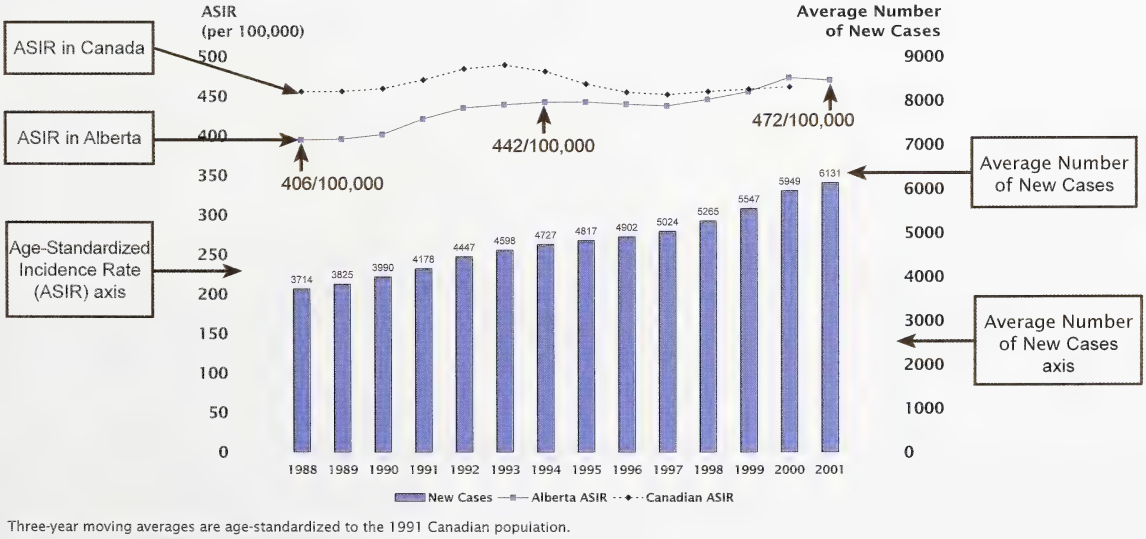
A recent feature on the age-standardized incidence and mortality graphs is the inclusion of Canadian rates. These rates, derived from Canadian Cancer Statistics 2004*, are calculated in a similar fashion to the Alberta rates (i.e., using the 1991 Canadian standard population and three-year moving average). Please refer to the Technical Report section at the back of this report (page 48) for more detailed information.

The Canadian ASIRs are included so that differences and similarities between provincial and national rates can be compared.

The 1991 Canadian population is used as the standard population in the calculation of age-standardized rates in this document, as well as the standard population for Canadian and all other provincial reports, except those produced by Alberta Health and Wellness, which use the 1996 Canadian population. The choice of which Canadian population is used has very little effect on the cancer rates presented.

* National Cancer Institute of Canada. *Canadian Cancer Statistics 2004*, Toronto. 2004.

Figure 47: Age-Standardized Incidence Rates (ASIR) and New Cases for All Invasive Cancers, Males, Alberta, (1988-2001)



Three-year moving averages are age-standardized to the 1991 Canadian population.

For comparative purposes, age-standardized incidence rates for the whole of Canada are included. While the most current Alberta data extends to 2002 (shown in the 2001 average), the most recent Canadian data only extends to 2001 (shown in the 2000 average).

Age-Standardized Incidence and Mortality Rates by RHA

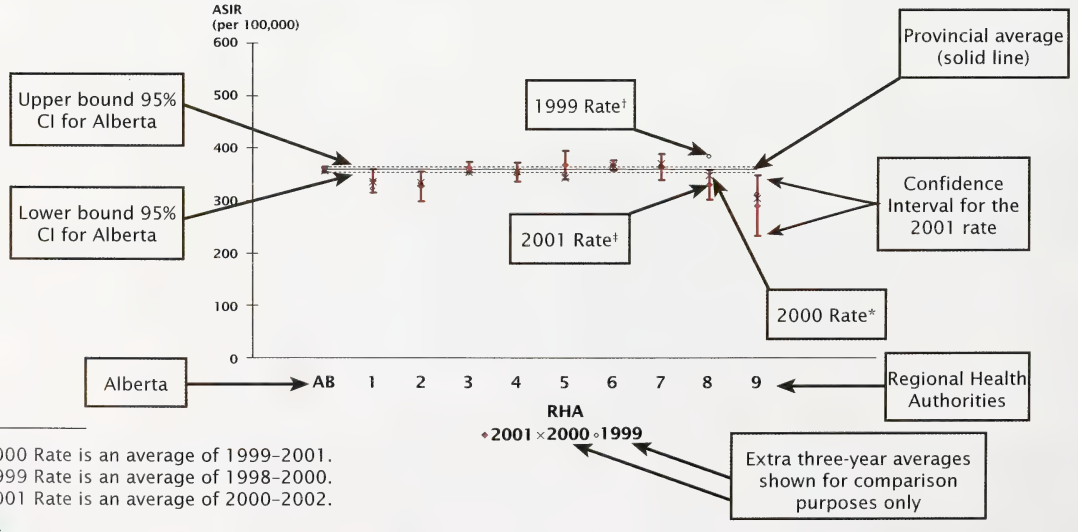
Age-standardized rates by RHA are presented for the last three years. In the figure below, the solid diamond (◆) represents the 2001 rate, the (✕) symbol represents the 2000 rate, and the open circle (○) represents the 1999 rate. As previously mentioned, each of these rates is based on a three-year average. The provincial average is represented by the solid middle line with the two solid lines on either side showing the confidence interval. If the regional I bar passes through the confidence interval, the difference between the data points is not statistically significant. The bars extending from the solid diamond indicate the confidence interval for the most current year's rate (2001 rate in the example below). A confidence interval (CI) indicates the precision of an estimate. Confidence intervals are partly a function of the population size; as the population size increases, CIs narrow. Wide CIs indicate less precision and occur when the population size is smaller.

Note, for example, the wider CI in Region 9 in Figure 48. This RHA has a relatively small population, and rates from small populations are more prone to variation due to chance than large populations, which produce wider confidence intervals. Consequently, the Alberta CI is narrower than those of the regions. The age-standardized rate for Alberta is dominated by the rates for RHA 3 (Calgary) and RHA 6 (Capital), which together represent almost two-thirds of the provincial population.

In order to evaluate the age-standardized rate of an RHA, note should be taken of the variability of the rates among the RHAs, as well as the width of the confidence interval. Age-standardized rates should be monitored over time.

Age-standardized mortality rates for individual RHAs reflect the number of residents of an RHA who die of cancer, regardless of where they die. This method is used so that the mortality rates presented in the tables accurately reflect a health indicator of individuals living in the RHA. Details regarding where deaths are occurring are still available in the RHA-specific data.

Figure 48: Age-Standardized Incidence Rates (ASIR) by RHA with 95% Confidence Intervals for All Invasive Cancers Females, Alberta, 2001 (average of 2000-2002)

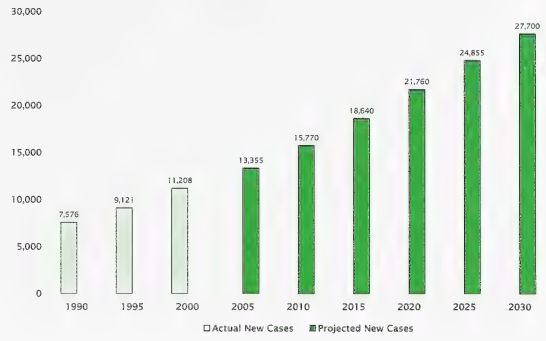


* 2000 Rate is an average of 1999-2001.
† 1999 Rate is an average of 1998-2000.
‡ 2001 Rate is an average of 2000-2002.

Projections

The projected number of new invasive cancers is presented slightly differently from the average number of new cases. The projection figures present actual and projected numbers rather than three-year moving averages. For example, in Figure 49, the projected number of new cancers in Alberta in 2010 is 15,770, and in 2025 is 24,855.

Figure 49: Actual and Projected Number of New Cases of Invasive Cancer, Alberta, 1990–2030

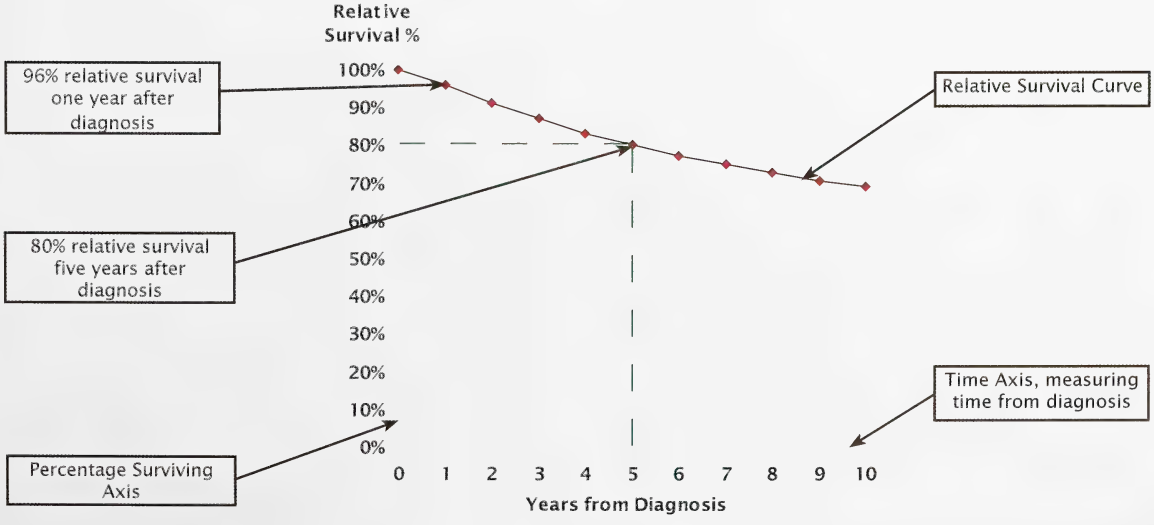


Survival Curves

Survival time for cancer patients is defined as the length of time between diagnosis and death. The method of relative survival is used in this publication. Relative survival is defined as survival of cancer patients relative to that of the general population, or the ratio of observed (all cause) survival in a group of cancer patients relative to the expected survival of a similar group of people in the general public, matched by age and gender in Alberta. For example, if relative survival for breast cancer is 96% at one year, the survival of breast cancer cases is 4% lower than the general population. Likewise, if relative survival for breast cancer is 80% at five years, the relative survival for breast cancer cases is 20% lower than the general population. For further details on relative survival, please refer to page 51 in the Technical Report section.

Survival curves can be used to compare survival outcomes between different groups (for instance, sex, cancer site, and year of diagnosis). The higher the survival curve, the better the survival rates for that particular cancer. Survival curves are presented on page 22, and depict all cancer survival as well as breast, prostate, lung, and colorectal cancer survival.

Figure 50: Relative Survival Curve for Invasive Breast Cancer, Females, Alberta



Data Preparation

The data for this report come from the Alberta Cancer Registry of the Alberta Cancer Board's Division of Population Health and Information, which records and maintains data on all new primary cancers and cancer deaths occurring in the province as mandated by the Cancer Programs Act of Alberta. The Cancer Registry captures all invasive and *in situ* cancers diagnosed amongst Albertans, as well as borderline conditions and central nervous system tumours that have been seen at an Alberta Cancer Board facility.

Registration of Alberta residents diagnosed with cancer has been documented since 1942. However, due to inconsistent coding, data entry, and data-retrieval techniques, only data starting from the 1970s are considered reliable. At that time, the Cancer Registry became person-based, rather than tumour-based.

The Alberta Cancer Registry operates out of two centres: The Tom Baker Cancer Centre in Calgary is responsible for the southern half of the province, while the Cross Cancer Institute in Edmonton maintains data collection for the northern half of the province.

It should be noted that comparative figures may change between different years of the Regional Picture report. The Alberta Cancer Registry is continually updating the registry database that the report is based on as new information becomes available. The data in this report are based on the registry data as of September 24, 2004.

Sources of Data

Population

Alberta Health and Wellness has supplied the population data for Alberta and its Regional Health Authorities. These population estimates are based on the Alberta Health and Wellness Stakeholder Registry and have been adjusted to account for the December 2003 boundary changes.

The standard population used in the age-standardized rates is the 1991 Canada Standard Population. This standard is the Canadian population distribution-based on the final post-censal estimates of the 1991 census, adjusted for under-coverage.

Residence

All data in this report relate only to those people who were resident in Alberta at the time of diagnosis or death. The RHA of residence is determined primarily from the postal code. Alberta Health and Wellness has supplied a postal-code-to-RHA conversion file for the most recent RHA boundaries (December 2003). The Alberta Cancer Registry has also developed a conversion file of community-name-to-RHA.

For incidence, the Standard Geographic Code or the postal code determine residence. Standard Geographic Code is available for 99.7% of cases and postal code for 98.3% of all cases registered (resident and non-resident).

For mortality, residence is determined from the death certificate. RHA of residence at the time of death is defined from postal code and/or town of residence as recorded on the death certificate. Note that this refers to the RHA of *residence at the time of death*, **not** the RHA *where the death occurred*. There is additional information in the Regional Inserts that addresses where deaths occurred.

Approximately 80% of death certificates have a postal code and only one or two cases per year are missing a town name: where both are recorded on the death certificate, there is less than 0.5% disagreement on RHA designation. Agreement between postal code and town (where both are recorded) as to whether the death occurred in a resident or non-resident of Alberta is almost 100%.

Incidence

Provincial incidence trends are calculated using data from 1987 to 2002. Since three-year averages are used, the graphs show trends from 1988 to 2001. National incidence trends are calculated using data from 1987 to 2001. Since three-year averages are used, the graphs show trends from 1988 to 2000.

The Alberta Cancer Registry learns of new cancers from a variety of sources. Laboratories throughout the province send a copy of each pathology report with a diagnosis of cancer to the nearest Alberta Cancer Board facility: the reports are then available to the Registry. Other items that also may be received are operative reports, discharge summaries, x-ray reports or scans, and autopsy reports.

All incidence tables and graphs represent *new cancers* and **not** the number of *Albertans with cancer*, as a person may have more than one type of cancer.

Throughout the report there are references to **All Invasive Cancers**. This excludes non-melanoma skin cancers (NMSC) unless explicitly stated otherwise. Although the number of NMSC in the province is quite large, this cancer is usually easily treated and seldom fatal. For these reasons, and concerns regarding the completeness of Cancer Registry records for NMSC, it is routinely excluded from **All Invasive Cancers**.

Mortality

Provincial mortality trends are calculated using data from 1987 to 2002. Since three-year averages are used, the graphs show trends from 1988 to 2001. National mortality trends are calculated using data from 1987 to 2000. Since three-year averages are used, the graphs show trends from 1988 to 1999.

Alberta Vital Statistics sends the Alberta Cancer Registry an electronic file with a list of all deaths occurring in Alberta, which is linked to the Registry to identify cancer patients who have died. Information on date, cause, and place of death are captured. Autopsy data, if different from the original diagnosis, are also entered. Registry staff may modify the death cause listed on the death certificate based on information available in the patient's medical record (see **Coding**). Fewer than 1% of new cancer cases are registered through the death certificate only.

Coding

Methods for coding cancers have evolved over the years and continue to be refined. Cancers are currently coded according to the International Classification of Diseases for Oncology, Third Edition (ICDO–3), which classifies all tumours by site and morphology: this is a recent change in coding practice at the Cancer Registry. Coding for cases diagnosed prior to 2001 were coded using ICDO–2. The sites used in this report are based on groupings of ICDO–3 or ICDO–2 codes, depending on year of coding.

The primary site of incident cancers is the tissue or organ in which the cancer originates. In general, data are tabulated by a three-digit topography code with some exceptions. For certain morphologies, such as lymphomas, classification by morphology takes precedence over topography.

It is possible for one individual to be diagnosed with more than one incident primary tumour, either at the same time or subsequently. The Alberta Cancer Registry follows the Surveillance, Epidemiology and End Results Program (SEER) rules for coding multiple primaries, which, in general, records separate primaries if the histology (sub) site or laterality is different from a previous cancer, or a new cancer is diagnosed more than two months after the initial diagnosis that is not stated to be recurrent or metatastic. SEER is a program of the U.S. National Cancer Institute that collects and publishes cancer incidence and survival data from population-based cancer registries. North American Association of Central Cancer Registries (NAACCR) supports the use of SEER coding rules for multiple primaries: the Alberta Cancer Registry is an active member.

Diagnostic Tests

Microscopic examination of tissues or cells is the definitive diagnostic test for cancer. During the period from 1994 to 1999, 93% of all cancers registered in the Alberta Cancer Registry were microscopically verified. Specifically, 98% of breast cases, 93% of prostate cases, 87% of lung cases, and 96% of colorectal cancer cases were microscopically confirmed.

The completeness of case ascertainment may be estimated by an index derived from the ratio of the age-standardized incidence to mortality rates. For the period from 1995 to 1999, relative to the combined SEER registries, the relative completeness of the Alberta Cancer Registry was estimated to be approximately 95%.

The underlying cause of death is coded according to the International Classification of Disease, Tenth Edition (ICD–10). This is a recent change in coding practice at the Alberta Cancer Registry: deaths prior to 2001 were coded using ICD–9. The sites used in this report are based on groupings of ICD–10 or ICD–9, depending on the year of coding.

The Alberta Cancer Registry reviews the underlying and contributing cause(s) of death for all Albertans with a mention of cancer on the death certificate. If the cause of death is inconsistent with the person's last known condition, further information is requested.

Based on this information, the underlying cause of death is reviewed and may be coded on the Registry as different from that appearing on the death certificate. In 1997, approximately 85% of deaths had the same ICD–9 three-digit code, 5.4% were deemed to be in the same site (e.g. head and neck), and 3.1% were coded as "primary unknown" on one source and "specific site" on the other. In only 6% of deaths was there significant disagreement.

Use of Three-Year Averages

In all plots of trends over time, three-year averages are used to smooth out the effects of random year-to-year variation. These are calculated for frequencies by averaging the numbers over three-year periods centered on a given year, and for rates by summing the number of cases over the three years and dividing by the sum of the three mid-year populations. Provincial averages are presented for 1988 to 2001 for incidence and mortality: these averages represent data from 1987 to 2002.

Statistical Methods

Average Number of New Cases and Deaths

Average numbers of cases and deaths are plotted to describe the trends in the total burden of cancer and also reflect the changes in population size and age structure. Three-year averages reduce the variability of statistics in the smaller regions and more accurately reflect the situation in RHAs, particularly the smaller ones, where year-to-year variability can be quite large.

Age-Specific Rates

Age-specific rates are calculated by dividing the number of incident cases or deaths occurring in a given period, in a given age group for a particular sex, by the corresponding age- and sex-specific Alberta population for the calendar period. Age-specific rates are expressed per 100,000 person-years.

Age-Standardized Rates

Age-standardized incidence and mortality rates (ASIRs and ASMRs) are presented because rates vary with age. If the crude rates [total number of cancer cases/(total population x period of observation)] are used for comparison purposes, they will be affected by differing population age structures. Age-standardized rates estimate the average cancer incidence rate that would have occurred in a standard population if the actual age-specific rates within that region had prevailed in the standard

population. To compare cancer incidence rates over time, or with other geographic areas, all rates to be compared should be standardized to the same standard population. The 1991 Canadian Census population is used as the standard population in the calculation of the age-standardized cancer incidence and mortality rates in this document.

In the June 2000 *Regional Picture*, incidence rates for pediatric invasive cancer were standardized to the entire population: these incidence rates are now standardized to the pediatric population only, accounting for the apparent increase in rates for both males and females between reports.

Confidence Intervals for Rates

A confidence interval indicates the precision of the estimate and for these data is a reflection of the population size on which the estimate is based, and not on the quality of the data collected. The method of the binomial approximation for the standard errors has been used.

Cancer Trends

Certain determinants of the number of new cases have been examined. The changes in the number of new cases since 1988 have been decomposed into changes due to age structure, population growth, and changes in cancer rates. This has been carried out for each sex separately.

The baseline number of new cases (the horizontal line on page 17) is the number of new cases in 1988. The top line represents the actual number of new cases over time.

The middle line represents the number of new cases expected if the age distribution in Alberta in 1988 were held constant from 1988 to 2001. This is computed as the population in a year multiplied by the age-standardized rate for that year, where the rate is standardized to the 1988 population.

The lowest line represents the number of new cases expected if the age distribution and the overall population size in Alberta in 1988 were held constant from 1988 to 2001. This is computed as the 1988 population multiplied by the age-standardized rate for that year, where the rate is standardized to the 1988 population.

Survival Curves

Relative survival has been used in the analysis of the Alberta Cancer Registry data. Relative survival compares the observed survival of cancer patients with the expected survival of members of the population with the same age and sex characteristics. This approach is the preferred method of estimating disease-specific population-based survival since it does not depend on the accuracy of the death certificate cause of death. Throughout this publication, Hakulinen's method of calculating relative survival* has been used. Provincial life tables, published by Statistics Canada, have been used to estimate expected survival.

To be consistent with other Canadian publications and to have comparable survival figures, the methodology and inclusion-exclusion criteria of the Canadian Cancer Survival Analysis Group (CCSAG) have been followed. Details of this methodology can be found in a Statistics Canada publication†, or by contacting any member of the CCSAG.

Projection of Cancer Incidence

The projection of cancer incidence assumes that the rates in the most recent five-year period will apply in the future. Differences in rates due to different age group structures are taken into account by estimating rates for four age groups: 0–44, 45–54, 55–64, and 65+. Rates for each sex, cancer site, age group, and RHA combination is estimated from 1998 to 2002 data.

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* Hakulinen, T. *Cancer Survival Corrected for Heterogeneity in Patient Withdrawal.* Biometrics. December 1982, 38(4): 933-942.

† Ellison, L., Gibbons L., and the Canadian Cancer Survival Analysis Group. *Five-year Relative Survival from Prostate, Breast, Colorectal and Lung Cancer.* Health Reports. 2002, 13(1): 1-12.

These estimated rates are assumed to prevail in the projection period from 2003 onward. These estimated rates are applied to the estimated RHA population figures (projected by Alberta Health and Wellness) to derive the sex, site, age group, and RHA-specific numbers of new cases. RHA-specific projections are obtained by aggregating over sex, site, and age groups. Rates are expressed per 100,000 person-years.

Probability of Developing or Dying from Cancer

The probability of developing cancer measures the risk of an individual developing cancer computed in a given age range, and is conditional on the person being cancer-free prior to the beginning of the age range. This includes the special case-lifetime risk of developing cancer of an individual.

The probabilities of developing and dying of cancer have been computed using **DevCan**, which is software freely available from the United States' National Cancer Institute. DevCan computes age-conditional probabilities based on the cross-sectional incidence and mortality rates. The incidence rates are for the first invasive cancer, excluding non-melanoma skin cancers.

This is a life-table method that accounts for competing risks and assumes that these rates remain the same in the future. The Alberta data presented is based on incidence and mortality rates in 2001.

Further details on the methods and algorithms used in DevCan can be found at http://srab.cancer.gov/devcan/.

General Prevention Resources

- **Prevention Link (February 2003)**

A brochure for health professionals containing core messages and recommendations about general cancer prevention; healthy eating; physical activity; tobacco control; sun awareness; environmental carcinogens; breast cancer screening and cervical cancer screening.

- **A Snapshot of Cancer In Alberta (2001)**

User-friendly Alberta cancer statistics as well as prevention information and initiatives.

Lifestyle Series Teaching Packages

A series of six teaching modules designed to help health professionals in RHAs to plan, implement and evaluate community activities and provide education on cancer prevention and early detection.

- **Healthy Lifestyles - Physical Activity**
- **Healthy Eating**
- **Cervical Cancer Screening & Prevention**
- **Breast Cancer & Breast Health**
- **Tobacco Reduction and Health**
- **Sun Sense**

Breast and Cervical Cancer Screening Resources

- **Literature Review – Cervical and Breast Cancer Screening, Interventions for Under-served Populations, November 2002**

A comprehensive document that reviews research literature since 1990 to determine effective strategies for increasing both breast and cervical cancer screening for women considered underserved or hard to reach.

- **Cervical Cancer Screening in Alberta – Women's Knowledge Attitudes and Behaviours (WKAB) Survey (2005)**

A fact sheet highlighting results of the 2000 WKAB Survey, about cervical cancer and screening, including Pap test utilization, barriers, and knowledge of risk reduction behaviours.

- **Alberta Clinical Practice Guideline for Cervical Cancer Screening**

A short document produced by the Alberta Medical Association in conjunction with the Alberta Cervical Cancer Screening Program that describes guidelines for those performing Pap smears.

- **Alberta Cervical Cancer Screening Program (ACCSP) Quick Reference Card**

A two-sided reference card for health professionals that explains key cervical cancer screening information including Pap smear preparation, screening recommendations and follow-up of Pap smear results.

As well as these publications, the following documents are available for download as Adobe Acrobat documents at http://www.cancerboard.ab.ca/accsp/resources-h.html:

Registered Nurse Pap Smear Learning Module
Module Index and Ordering Instructions

Program Information Package
Letter to Health Care Providers

ACCSP Poster

Physician's Report of Ineligibility for Cervical Cancer Screening

ACCSP Resource Request Fax Form

Sample Results Letters

- Unsatisfactory result letter
- Abnormal result letter
- Normal result letter
- "No letter" option form

ACCSP Brochures

- Introducing a New Program to Prevent Cervical Cancer
- When was your last Pap test?
- What does it mean if you have an abnormal Pap test?
- HPV and abnormal Pap test results

Nutritional/Healthy Eating Resources

- **Simply Healthy Vegetable and Fruit Community Action Resource Toolkit (March 2001)**

A resource kit that assists RHA staff with developing community-based nutrition projects that increase awareness about the value of consuming five to ten vegetables and fruits daily.

- **Vegetable and Fruit Consumption in Alberta – Report on the Nutrition: Knowledge, Attitudes & Behaviours Survey (August 1999)**

A report for RHA staff that highlights literature which links diet, especially consumption of vegetables and fruit, with cancer prevention and gives highlights of the baseline 1998/99 NKAB Survey

Tobacco Reduction and Prevention Resources

- **Alberta Alcohol and Drug Abuse Commission**

Printed and electronic information available from this agency of the Government of Alberta is available from their web site at http://tobacco.aadac.com.

Sun Protection Resources

- **Sun Safety in Alberta – Knowledge, Attitudes and Behaviours Survey in Headwaters Health Region (May 2003)**

This fact sheet highlights the results of a sun safety survey among parents with children ages two to 12. The results include reasons that children don't follow sun protection guidelines and how much parents know about how to reduce the risk of sun exposure.

- **Sunright Sun Safety Policy Guide for Early Childcare Facilities (March 2003)**

A guide to assist daycare or registered family homes with the development of a sun exposure policy and the education of staff and parents.

- **Sunright Sun Safety Policy Guide for Outdoor Workers (March 2003)**

A guide to assist management of outdoor workers and workplaces with the development of a sun exposure policy and the education of staff.

- **Sunright Sun Safety Policy Guide for Youth Activities (March 2003)**

A guide to assist sporting groups, camps, or similar organizations with the development of a sun exposure policy and the education of staff, volunteers and parents.

- **Healthy Living with Sunshine: An Information Kit for RHAs (March 2002)**

An information package for RHA staff including sun safety messages, skin cancer detection, promotional fillers and more. (Note: Kit is available in PDF format only at http://www.cancerboard.ab.ca/cancer/cancer_online.html)

To Order Resources

All resources, unless otherwise specified, may be obtained by download from the Alberta Cancer Board web site at http://www. cancerboard.ab.ca/cancer/cancer_online.html or by contacting the Prevention Team at prevention@cancerboard.ab.ca.

For More Information

For more information about the work of the Alberta Cancer Board and services offered, please visit our web site at http://www.cancerboard.ab.ca.

We also welcome your comments about this report and value your suggestions for improvements. Please contact us at prevention@cancerboard.ab.ca.

Incidence and Mortality

- **Canadian Cancer Statistics 2004**
  Canadian Cancer Society/National Cancer Institute of Canada/Statistics Canada/ Provincial and Territorial Cancer Registries/ Health Canada

These reports, published annually by Health Canada, examine incidence and mortality across Canada and the provinces. Different specialized topics are included each year.

- **Alberta Cancer Registry: Annual Report of Cancer Statistics, 2001 (June 2004).**

This document contains aggregate data on the incidence and mortality of cancer in the province of Alberta. This information is used by health professionals and policy makers.

Survival Analysis

- **Five-year Relative Survival from Prostate, Breast, Colorectal, and Lung Cancer**
  L.F. Ellison, L. Gibbons and the Canadian Cancer Survival Analysis Group. *Health Reports*, 2002, Vol. 13, No. 1

Provincial variations in relative survival rates are examined. Breast, prostate, colorectal and lung cancers are considered.

- **Leading Cancers—Changes in Five-year Relative Survival.**
  Health Statistics Division, Statistics Canada.

Changes in five-year relative survival ratios for prostate, breast, colorectal and lung cancer cases are examined. Available at http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=15151028

Screening and Early Detection

- ***Screen Test*: Alberta Program for the Early Detection of Breast Cancer: 2001/2003 Biennial Report**
  Division of Population Health and Information, Alberta Cancer Board,
  March 2004

This publication describes *Screen Test* activities throughout Alberta, as well as regional information on screening.

Photo Credits

All cover photographs courtesy of the Government of Alberta.

Front Cover
Top (*left*): Westerner Days, Red Deer

Top (*right*): Salt Plains, Wood Buffalo National Park

Bottom: Mountain Biking, Nose Hill Park, Calgary

Back Cover
Top: Golfing, Jasper Park Lodge Golf Course, Jasper National Park

Bottom (*left*): Boat Tour, North Saskatchewan River, Edmonton

Bottom (*right*): Shadow Lake Lodge, Banff National Park

Tell Us What You Think...

The Division of Population Health and Information of the Alberta Cancer Board publishes **Cancer in Alberta: A Regional Picture** annually to provide current data on cancer and examine provincial trends.

To ensure that we continue to provide useful and concise information, please take a few moments to complete and return this evaluation.

This section is important/useful to me:	**Agree Strongly**				**Disagree Strongly**
Introduction					
Highlights	○	○	○	○	○
What Is Cancer?	○	○	○	○	○
Cancer in Alberta	○	○	○	○	○
Alberta's Health Authorities	○	○	○	○	○
Cancer Control Activities in Alberta	○	○	○	○	○
Provincial Overview					
Surveillance	○	○	○	○	○
Incidence	○	○	○	○	○
Mortality	○	○	○	○	○
Incidence and Mortality Rates by RHA	○	○	○	○	○
Cancer Trends	○	○	○	○	○
The Risk of Developing and Dying of Cancer	○	○	○	○	○
Projections	○	○	○	○	○
Cancer Survival	○	○	○	○	○
Site Specific Data	○	○	○	○	○
Understanding the Graphs	○	○	○	○	○
Technical Report	○	○	○	○	○
Resources for Health Professionals	○	○	○	○	○
References	○	○	○	○	○
Regional Data	○	○	○	○	○

What improvements or changes would you like to see?

_____

_____

_____

Plea

Alberta Cancer Board

Alberta Cancer Board
Division of Population Health and Information
Holy Cross Site
2202 Second St. SW
Calgary, Alberta, Canada
T2S 3C1
Telephone: (403) 355-3270
Web Site: http://www.cancerboard.ab.ca